

ABSTRACT

Title of Thesis: ENCLOSURE WITHOUT CONTAINMENT:
TREATMENT CENTER FOR AT RISK
CHILDREN

Thuy Thanh Do, Master of Architecture, 2016

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Suicide in young children seem to occur more frequently now than ever before. Children as young as five years old have been admitted to the intense patient Behavioral Health facilities. It is important that these enclosed facilities are comfortable for these children while they are under analysis and treatment. The difficulty in term of design for these facilities that they are particularly secluded and closed-off to the public for the protection of the children. However, if the design is successful, it will help to heal the children. This thesis will analyze on three issues with behavioral health facilities. The first problem is the design of behavioral health centers, which creates a feeling of enclosure and imprisonment. The second issue is the traditional architecture vernacular of these facilities. They are not well thought-out with the interest of the children. The third issue is the stigma that is attach to

behavioral health centers. Society overlooks and stereotypes these children. These issues can be resolved through architecture.

- Architecture can translate nature and natural elements into spatial experiences of reflection.
- Architecture can affect mental health through space, form, function, light, and materials.
- Architecture can provide an aesthetic that can sway or influence negative social stigmas and images that society holds on behavioral centers.
- Architecture can provide defined enclosure without restrained containment while simultaneously offering protection.

This thesis will explore these theories and apply them to the design of the children residential treatment facility in the Cheverly neighborhood in Prince George's County, Maryland where at risk children can come together for support, to be treated, and become part of the community.

ENCLOSURE WITHOUT CONTAINMENT:
TREATMENT CENTER FOR AT RISK CHILDREN

by

Thuy Thanh Do

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
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Professor Michael A. Ambrose, Chair
Professor Brian Kelly, Committee
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Preface

Thursday January 7th of 2016, approximately around two o'clock I received a phone call from my sister stating that my niece, her daughter was admitted to the emergency room due to suicide attempt. The news hit me like a ton of bricks as my heart fell. My mind was racing. I was worried about the severity of her attempt and her well-being. This scenario was all too familiar to me. I did not want to relive it again. About three years ago, my friend attempted suicide on his twenty-eighth birthday and almost ended his life. Fortunately, the doctors got to him in time and saved his life. He was in a comma for a month and spent several months in the intensive care unit. He was diagnosed with Schizophrenia afterward. Three years later, he is still fighting his battle. In my niece's case, she is only twelve years old. I had to ask myself, how can children this young experience suicidal thought? After an intensive evaluation in the emergency room, they transferred my niece to a children behavioral and wellness facility for observation and detailed assessment.

The next day I came in to the facility to see how she was doing. I was very surprised that the facility looked and operated very much like a prison with cold hard CMU walls and tile floors. There were high security lock systems at every door. Each nurse and technician had his or her own key to access. The units were segregated by age, toddler to five, six to twelve, and thirteen to eighteen. Each unit has a central spine with rooms lining along the sides of it. The rooms were about ten feet by fifteen feet. In each room, there are two twin beds on opposite ends, two tall storage cabinets, and a powder room to the corner. There was a center window with top down blinds. The

blinds were pulled down about six inches from the top sill to let indirect light through. When one would look up to the sill, one would see the bottom of an overhang. Out in the main central office, located at the end of the spine, there are activity room, small meeting room, and public showers. I could not see myself in this facility let alone my niece or other children for that matter. Why are they being held captive when they are just trying to call out for help? Why are they being imprisoned? Why architecture of imprisonment? I began to wonder if architecture could create a feeling of enclosure without containment. I began to ask if the design of these treatment facilities could be in done in the best interest of the children? Could architecture sway the stigma that is attached to this type of facility?

Dedication

To my parents who unconditional love and support have guided me to where I am today.

Acknowledgements

My dearest family and friends for your unconditional love and support.

Professor Michael Ambrose [Thesis Committee Chair] for your constant help and support for the pass year. I could not made it through my thesis without your help. Even through your hardest times, you still manage to guide along to the end.

Heather Rini for taking your time out to guide me around the Regional Institute for Children and Adolescents (RICA) of Baltimore. Your detailed floorplans and information helped me tremendously in my research and design.

Michael Dunphy for taking your time out to guide me around St. Vincent's Villa. Your floorplan helped me greatly during the implementation of the program and design process.

Theresa Carpenter for taking your time out to guide me around the Mann Residential Program and School of Sheppard Pratt during your business schedule. Also, I want to thank you for lending me your books for my research.

Maureen McGuire and Phil Steven for taking your time out to guide me around the Jefferson School. You both have made a great impact on the technical and user experience aspect of the design.

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Chapter 1: Defining the Problem

“In 2014, there were 42,773 deaths by suicide in the United States. Suicide is the 10th leading cause of death. It is the second leading cause of death for 15 to 24 year olds”¹

¹ Marlena Fitzpatrick García / AlterNet. "Major Study: Suicide Rates in the U.S. Are Soaring." *Alternet*. N.p., 22 Apr. 2016. Web. 22 Mar. 2017.

Timeline of Community Behavioral Treatment Center

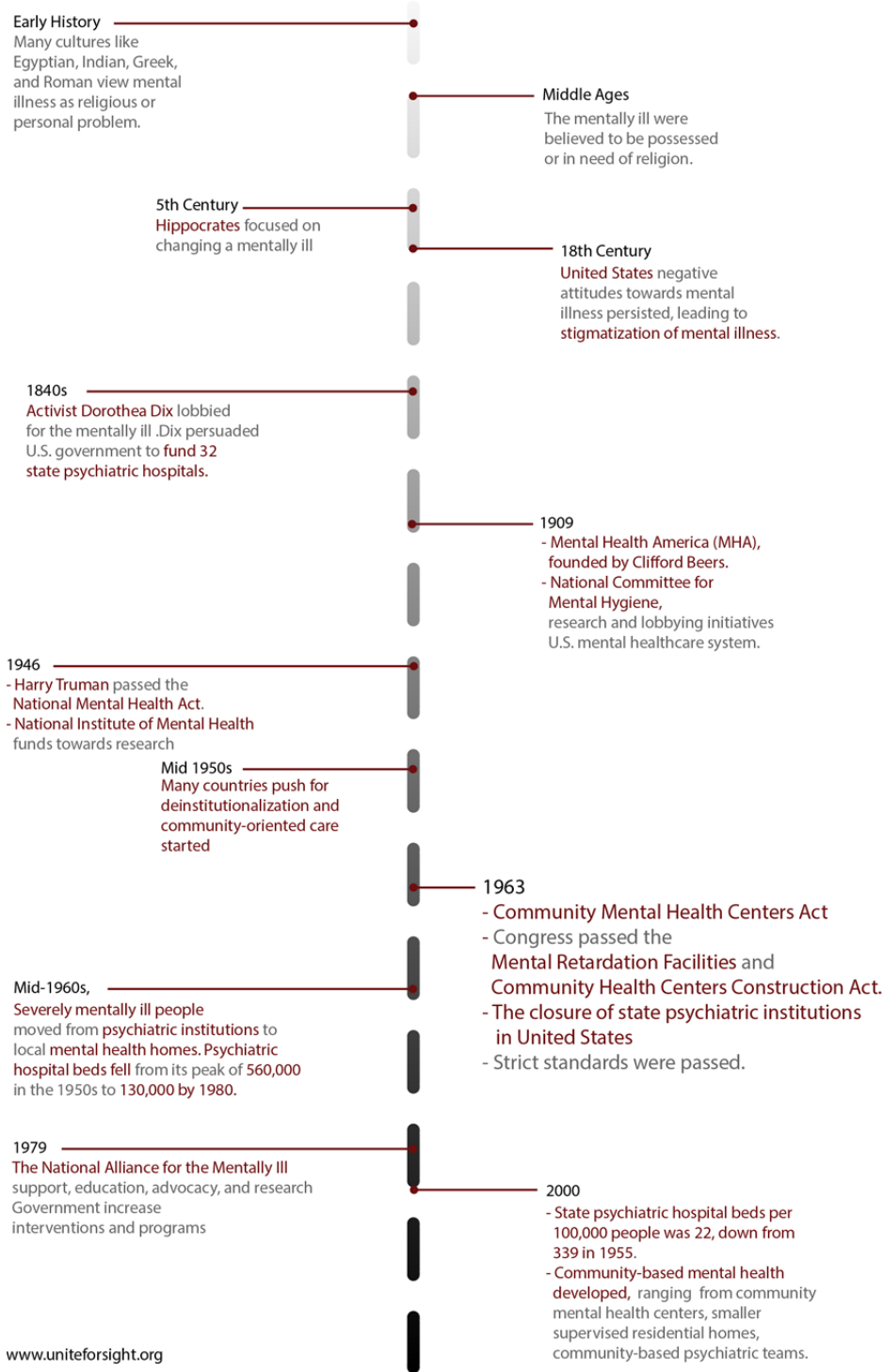


Figure 1: Timeline created by author: Thuy Do

The history and policy of psychiatric illness had been a long and slow progression. Not until the 1940s when United States established the National Mental Health Act. In addition, the National Institute of Mental Health was created to fund research to find treatment and cure mental illness conditions. A decade later in the 1950s, a worldwide pushed of the deinstitutionalization took place. The act of warehoused mental illness patients was no longer the norm. The budding of the community oriented-care movement started to occur. 1963 was the most prominent year because congress passed the Community Mental Health Centers Act, Community Mental Health Centers Construction Act, and Mental Retardation Facilities Act. The closure of mental institutions took into effect. Also, stricter laws regarding caring and treating for mental illness patients started to passed and enforced. These Acts helped the patients to transitioned back into their communities. Public and private sectors have then built community residential treatment centers. These centers treat adults and children in the communities.²

² "Community Mental Health Act." National Council. N.p., n.d. Web. 22 Mar. 2017.

Suicides Rates among Children in the U.S

According to the *Manufacture of Madness: a comparative study of the inquisition and the mental health movement* by Szasz, “not until the end of the twentieth century, suicide was considered a criminal act. Much of the social stigma still associated with its former connection with legal judgement and religious disapproval. Suicide continued to rise since 1950s. Since then, Caucasian male suicide rate tripled between 15 to 24 years old. While female in the same subgroup doubled. In 1999, survey found that 20 percent of high school considered or attempted suicide. Ninety percent of these adolescents who committed suicide diagnosed with psychiatric disorder ³. According to the 2013 Center for Disease Control and Prevention statistics, suicide is the second leading cause of death for ages 10-24. Suicide is the second leading cause of death for college-age youth and ages 12-18. More teenagers and young adults die from suicide than from cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined. Each day in our nation, there are an average of over 5,400 attempts by young people grades 7-12. Four out of Five teens who attempt suicide have given clear warning signs. ⁴

³ Szasz, Thomas Stephen. *The manufacture of madness: a comparative study of the inquisition and the mental health movement*. Syracuse: Syracuse U Press, 1997. Print.

⁴ Centers for Disease Control and Prevention. *Centers for Disease Control and Prevention*, 19 July 2016. Web. 22 Mar. 2017.

Definitions of Suicide

According to Marie Rivollet, two Masters working with Children's Rights Advocacy groups at Humanium Organization, a suicidal child or adolescent is a minor who intends or plans to end his life. Child suicide designates the act by which a child voluntarily brings about his death. In most cases, this is not simply a wish to die, but the ultimate means of escaping from great suffering or from a situation from which the child can find no exit. A suicide attempt is defined as an act, which is not successful, through which a child expresses a wish to harm his or herself, putting him or herself in danger with the intention of bringing about his or her own death. Suicide attempts are not always failed attempts. Many considered as desperate attempts to draw attention to the problems and feelings of malaise experienced by the child ⁵.

There are many triggering factors or a combination of these factors lead a child to suicide thoughts or behaviors. By understating the causes and the symptoms, one can take the necessary action steps to prevent future suicidal incidents. In addition, this information will help to assist the architecture vernacular in the design world.

⁵ "Testimony – Marie Rivollet." Humanium Together for Childrens Rights. N.p., n.d. Web. 25 Mar. 2017.

Some of the Attributes are:

- Hormonal changes
- Increase in school work loads
- Personal relationship
- Loss of loved one
- Divorce
- Relocation
- Assaults
- Psychological (depression, anxiety, anti-social)
- Behavioral (aggressive, drug or alcohol)
- Desertion
- Neglect
- Ill treatment
- Lack of future prospects
- Isolation
- Cyber dependence (video games/internet)
- Harassment/Bullying
- Violence (sexual orientation/minority status)

Some of the Symptoms are:

- Sleep disturbances (too little/too much)
- Loss of appetite/ weight
- Isolation
- Loss of interest in activities
- Truancy
- Verbal and physical aggressiveness
- Drug/alcohol
- Neglecting appearance and hygiene
- Unnecessary risk-taking
- Interest in death
- Sending out worrying messages
- Poor notes/ unusual problem at school
- Difficult concentrating
- Negative thoughts about qualities/success

American Foundation for Suicide Prevention Statistics

- Suicide costs the United States 44 billion annually.
- For every twenty-five suicide attempt, one succeeded.
- The annual suicide rate is 12.93 per 100,000 individuals.
- Men die by suicide 3.5 times more often than women do.
- On average, there are 117 suicides per day.
- White males accounted for 7 of 10 suicides in 2014.
- Firearms account for almost 50% of all suicides.
- The rate of suicide is highest in middle age — white men in particular. ⁶

⁶ "Suicide Statistics — AFSP." AFSP. N.p., n.d. Web. 25 Mar. 2017.

Suicide Graph

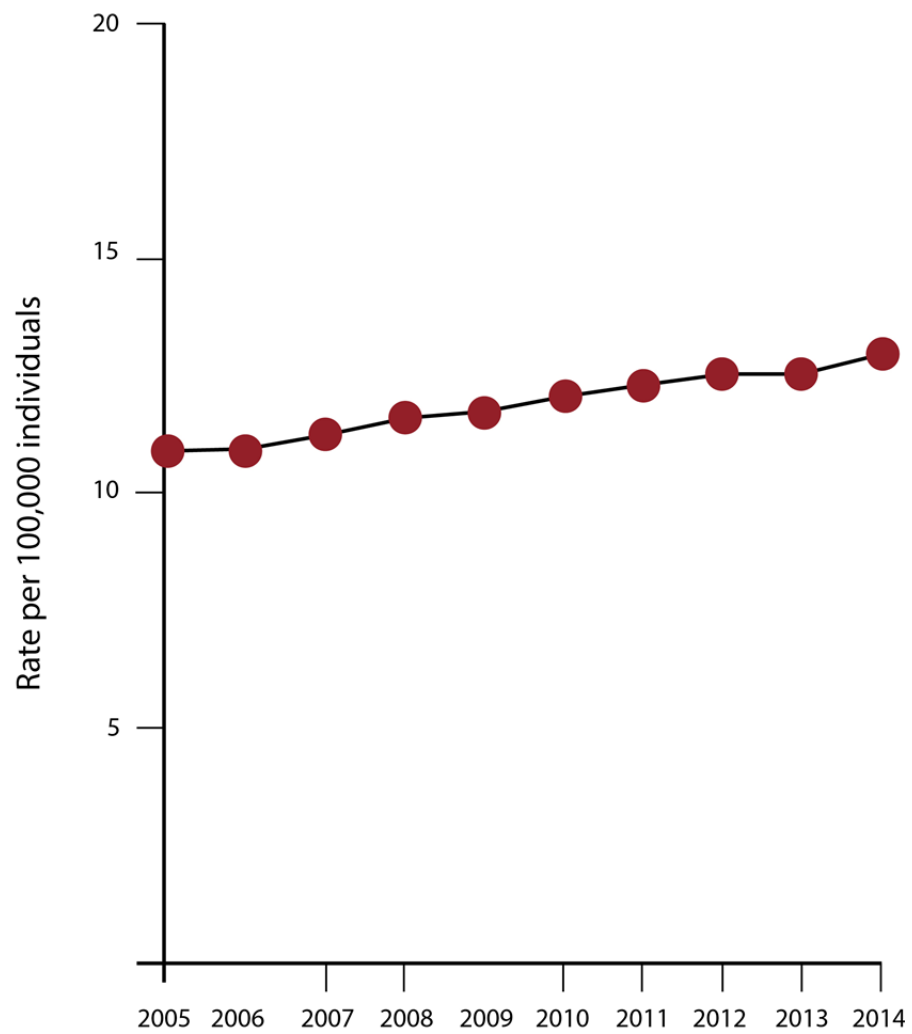


Figure 2: Rate of Suicide
Graph created by author: Thuy Do
American Foundation of Suicide Prevention

⁶ "Suicide Statistics — AFSP." AFSP. N.p., n.d. Web. 25 Mar. 2017.

Rates of Suicide per 100,000 in 2014

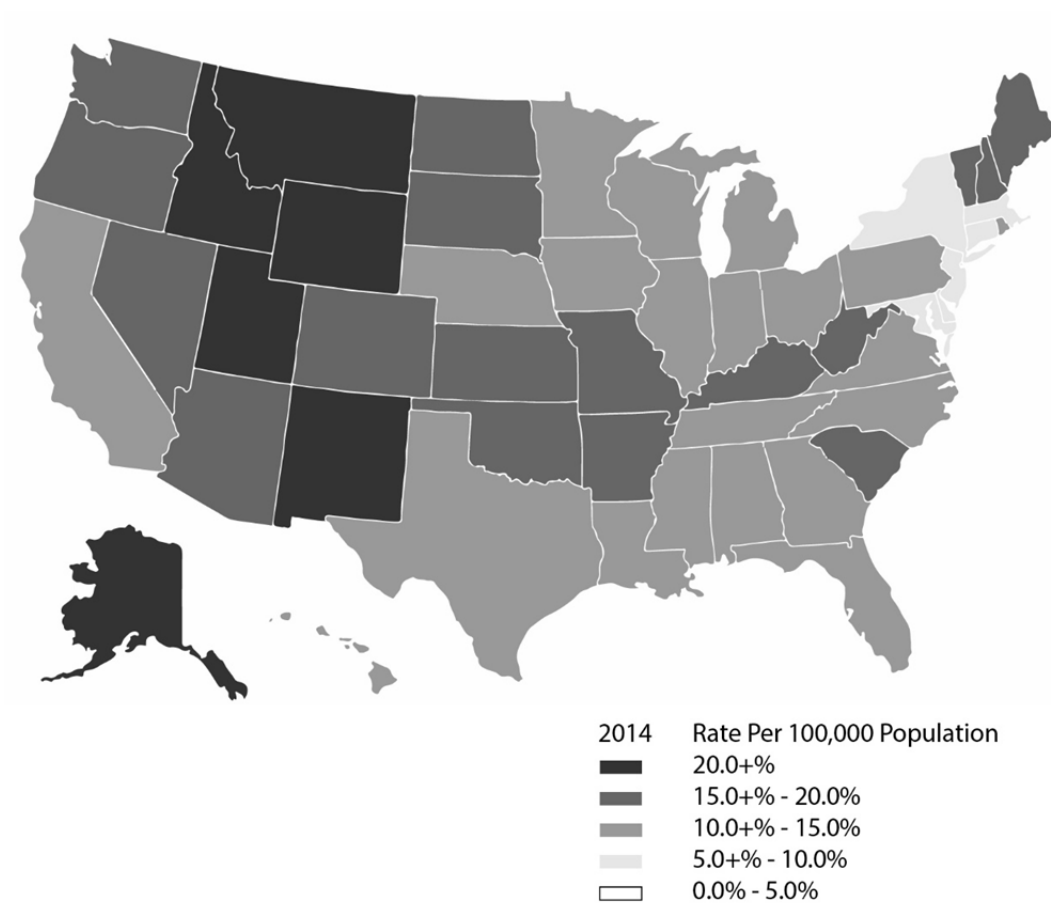


Figure 3: Rate of Suicide
Graph created by author: Thuy Do
American Foundation of Suicide Prevention

⁶ "Suicide Statistics — AFSP." AFSP. N.p., n.d. Web. 25 Mar. 2017.

States had Over 1,000 Deaths by Suicide in 2014

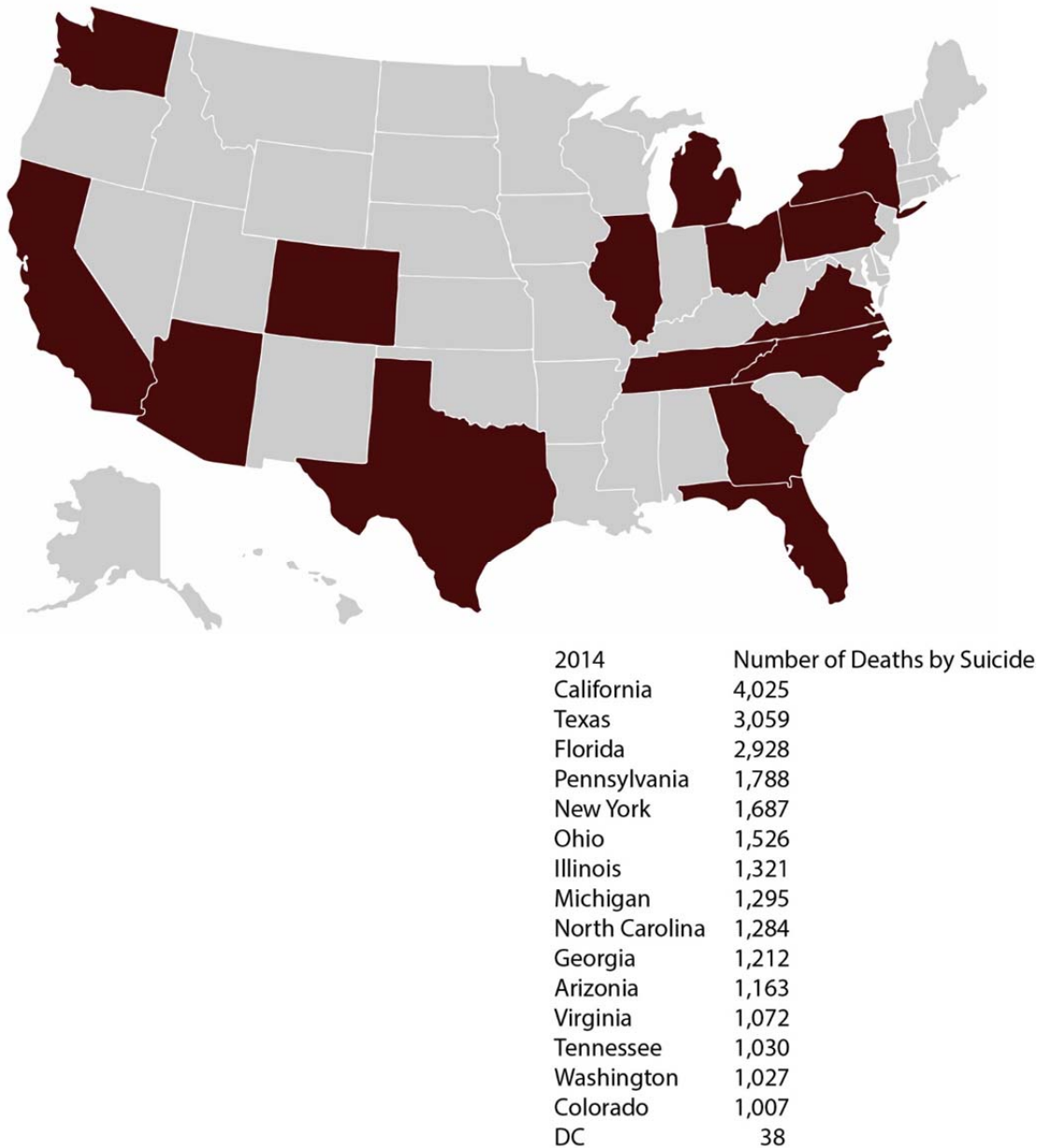


Figure 4: Death by Suicide
Graph created by author: Thuy Do
American Foundation of Suicide Prevention

⁶ "Suicide Statistics — AFSP." AFSP. N.p., n.d. Web. 25 Mar. 2017.

Suicide Rate per State

	States	Rate per 100,000 Population	Number of deaths by Suicide
*	National	41.149	12.57
1	Montana	23.80	243
2	Alaska	21.97	171
3	New Mexico	20.96	431
4	Wyoming	20.67	129
5	Utah	20.57	579
6	Idaho	20.07	308
7	Colorado	19.78	1,007
8	Nevada	19.47	541
9	Oklahoma	19.05	665
10	Oregon	18.65	698
11	Vermont	18.64	112
12	West Virginia	18.09	323
13	Arizona	18.00	1,163
14	New Hampshire	17.63	185
15	North Dakota	17.49	128
16	Arkansas	17.25	516
17	South Dakota	17.03	147
18	Missouri	16.31	960
19	Kentucky	15.88	701
20	Maine	15.73	245
21	Kansas	15.66	425
22	Washington	15.18	1,027
23	South Carolina	15.13	696
24	Alabama	14.46	721
25	Louisiana	14.26	583
26	Indiana	14.25	944
27	Tennessee	14.11	1,030
28	Florida	13.84	2,928
29	Hawaii	13.64	171
30	Nebraska	13.35	220
31	Pennsylvania	13.28	1,788
32	Michigan	13.23	1,295
33	Delaware	13.20	122
34	Wisconsin	13.10	850
35	North Carolina	13.03	1,284
36	Virginia	12.86	1,072
37	Iowa	12.78	447
38	Georgia	12.65	1,212
39	Ohio	12.57	1,526
40	Mississippi	12.54	388
41	Minnesota	12.24	678
42	Texas	12.18	3,059
43	California	10.46	4,025
44	Illinois	10.43	1,321
45	Rhode Island	10.01	132
46	Maryland	9.76	569
47	Connecticut	9.71	330
48	New Jersey	8.32	757
49	Massachusetts	8.25	572
50	New York	8.09	1,687
51	District of Columbia	5.77	38

Table 1: Suicide Rate

Table created by author: Thuy Do

American Foundation of Suicide Prevention

Treatment and Therapy

According to *Design Details for Health* by Cynthia Liebrock, before the Community Mental Health Center Act of 1963, most chronically mentally ill patients warehoused in institutions with little treatment, isolation and unvaried routine lured these clients into total dependency on the institution. After the act passed, many of these dependent patients ended up on the street with no medications, mental health services, or means of living independently.

In the early 1980s, such of health-care treatment was effectively capped with the advent of the DRG (diagnosis related group) reimbursement system because mental disorders were exempt from this cap; it finally became financially advantageous to treat mentally ill people. According to Williams reported by Malkin, between 1970 and 1986, the number of beds in psychiatric hospitals increased by seventy-five percent, and the market experienced a boom in construction.

Little was known about therapeutic design for people with mental illness. Only institutional models existed, examples of poorly defined flexible spaces. Research has shown that when expected behavior patterns are not clearly defined by space, all behavior feels out of place and random.⁷

⁷ Liebrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print.

Mistreated

According to Juhani Pallasmaa, *The Eyes of the Skin* “If we desire architecture to have an emancipating or healing role instead of reinforcing the erosion of existential meaning, we must reflect on the multitude of secret ways in which the art of architecture is tied to the cultural and mental reality of its time. We should also be aware of the ways in which the feasibility of architecture is being threatened or marginalized by current political, cultural, economic, cognitive and perceptual developments. Architecture has become an endangered art form.” (p32) If we want architecture to play a role in healing, we must reflect on how the art of architecture is related to cultural and mental reality of time. We must also take into consideration that art is becoming endangered due to cognitive and perceptual developments, politics, culture, and economics.⁸

⁸ Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*. Chichester: Wiley-Academy, 2005. Print.

Bad Precedents

Twin Towers the facility houses 1,400 mentally ill patients in one of its two identical hulking structures in downtown Los Angeles. Nowadays, society still treat mental illness patients has criminals and convicts. These patients are still “warehoused” and captive.⁹

Twin Tower Facility, Los Angeles



Figure 5: Los Angeles Times

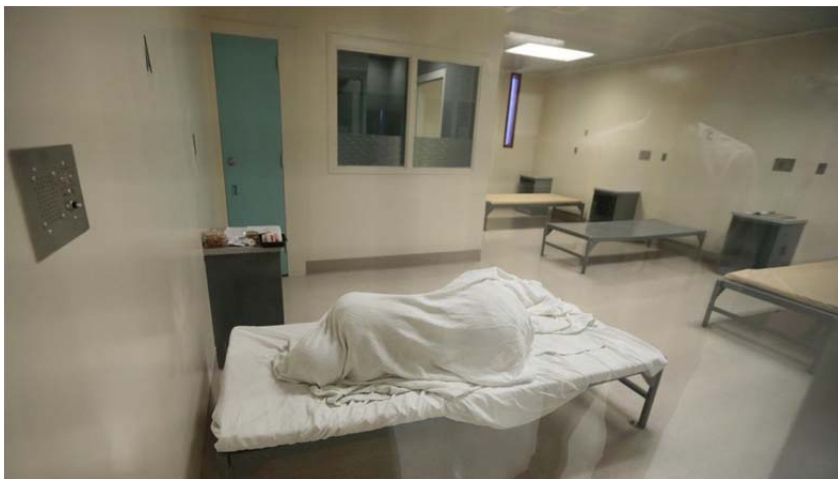


Figure 6: Los Angeles Times

⁹ "Mental illness at L.A. County's Twin Towers jail facility." Los Angeles Times. Los Angeles Times, n.d. Web. 26 Mar. 2017.

Children of Darkness, Documentary of Psychiatric Institutions 1983

In 1983 an American movie by Ara Chekmayan and Richard Kotuk documentary the *Children of Darkness* was nominated for an Academy Award for Best Documentary Feature. The movie featured mental illness children and adolescents being care fore in private and public residences. The movie examined four facilities; Eastern State School and Hospital in Pennsylvania, Elan School in Poland in Maine, Sagamore Children's Center in New York, and South Beach Psychiatric Center in Staten Island in New York. The documentary showed interviews with staffs, patients, and parents, whose children had died under suspicious circumstances under the care of these centers. Three out of four of these centers are now closed. The Elan School in Poland in Maine was closed due to the mistreatment of their patients. The South Beach Center had two patients died due to harsh physical mistreatments and medications. In addition to the abuse and heavily medications, the patients and to live in poorly design conditions. The corridors were narrow. There was metal torn fences surrounding the facilities.¹⁰

¹⁰ *Children of Darkness* is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk

Eastern State School & Hospital, Pennsylvania



Figure 7: Children of Darkness Documentary



Figure 8: Narrow Corridor

¹⁰ *Children of Darkness* is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk

Elan School, Maine



Figure 9: Children were punished by placing in trash bin.

Children of Darkness Documentary



Figure 10: Children were punished by chained and costumed.

¹⁰ *Children of Darkness* is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk

Sagamore Children's Center, New York



Figure 11: Children of Darkness Documentary



Figure 12: Children were tied down to their beds.

¹⁰ *Children of Darkness* is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk

South Beach Psychiatric Center, New York



Figure 13: Children of Darkness Documentary



Figure 14: The rooms for the children were small and narrow.

¹⁰ *Children of Darkness* is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk

Chapter 2: Approach Theories

Preview of Work

Architecture can translate nature and natural elements into spatial experiences of reflection. Architecture can affect mental health through space, form, function, light, and materials. Architecture can provide an aesthetic that can sway or influence negative social stigmas and images that society holds about children behavioral treatment centers. Architecture can provide defined enclosure without restrained containment while simultaneously offering protection. The working hypothesis is that children behavioral health facilities can better serve the children they support without being imprisonment. This behavioral health children facility prototype developed in this thesis project will ignite and influence future facilities and the lives of at risk children.

The process of dealing with the emergency room protocol is hectic enough after your child attempted suicide. The aftermath of transitioning to an intake, children behavioral health facility for assessment and treatment may be a more comfortable environment. The calming environment can affect the mental and emotional state of the patient and his or her family. A supportive environment can include simplicity of wayfinding and the privacy and ease of communication. In addition, it can comprise the control of lighting, sound, and temperature. This facility could have access to nature in a tranquil and lovely landscape. The integrating of

gardens, providing a comfortable room, inserting warm incandescent lighting, and providing a family support space create an opportunity for powerful architecture that can be injected into the healing process.

Definition and Order of Terms

Enclosure is an area that is sealed off with an artificial or natural barrier.

Containment is the action of keeping something harmful under control or within limits.¹¹

¹¹ "Enclosure and Containment Definitions - Google Search." *Enclosure and Containment Definition - Google Search*. N.p., n.d. Web. 26 Mar. 2017.

According to Rachel and Stephen Kaplan, *The Experience of Nature a Psychological Perspective*, “to find out about preference for existing settings, however, one must give up some of the control. Since the purpose of scientific control is to increase confidence that one is, in fact, isolating the effect of particular factors, reduction of such control must also reduce one’s confidence. This is an unavoidable trade-off; one cannot have it both ways.”¹²

What is Enclosure without Containment?

According to Roger Trancik in *Finding Lost Space: Theories of Urban Design* there is a definite distinction between ‘hard space’, principally bounded by architectural walls, and the ‘soft space’ of outdoor areas, which have less enclosure or defined boundary and are more dominated by natural environment. The three major space defining elements are surrounding structures, floor, and the sphere of the sky. “Enclosure and spatial containment must therefore be considered in both plan and section.” The amount of enclosure, and the resulting degree of containment, partially depends on the ratio of the width of the space to the height of the enclosing wall. The most comfortable viewing distance for a building is from a distance of about twice its height. Greater variety of visual experiences can be created by spaces that restrict views in surrounding architecture.

¹² Kaplan, Rachel., and Stephen. Kaplan. *The Experience of Nature : A Psychological Perspective*.Michigan: Cambridge University Press, 1995. Print.

The weakness interpretation of spaces in a building is usually appears when the designated areas are organized aimless with no effort to coordinate relationship between them. In this sense, the spaces are unrelated elements surrounded by negative space without focus. There are ways in which compositional order layout of spaces or structures could attain. The first is a rectilinear layout. This type of layout is strong in reinforcing rigidity. The second alternative layout is less rectilinear more free or organic. This lenient layout introduces a degree of variety and fluidity into the design.

When spaces are clustered together in a more organized manner, ‘positive’ spaces can be established. One of the way in establishing a sense of spatial containment is to group designated areas around a central space enclosing them within boundaries or walls. Where the corners of the space are open, forming avenue intersections or a void between two zones, the space leaks out through the corner openings. To improve containment, barriers can be overlapped, preventing or limiting views into or out of the space. When walls turn the corner, keeping views within the central space, a strong prominent sensation of enclosure is formed. If the whole space is open and easily observe, it does not promote involvement. In addition, it may lack subspaces and implied more movement. Providing a varied of defined areas can result in a richer quality of design because this helps the users to be more productive. Another factor that can create a prominent sense of enclosure is the design of openings into a space. This method was referred to by Booth as “windmill” or “whirling”, and Cammillo Site referred to as “turbine”: the path do not pass directly through the space, pronouncing a strong sense of containment.

Not only this layout contributes to strengthening the enclosure of the spaces, it also forces the users to understand the space, since they are encouraged to walk through instead of walking by it. In smaller outdoor spaces – gardens, parks, walks, and plazas – these enclosures seem to create a feeling of security. In some way, one can observe the order of value of protection in certain spaces. For example, the level of protection dissipated as one moves from elementary, middle, and high school. Eventually when one gets to college, the level of protection resides mostly in oneself and not so much implemented by the institution. On the other end of the spectrum, the need for containment in a prison should be on top of the order of scale. Architecture can provide defined enclosure without restrained containment while simultaneously offering protection.¹³

¹³ *Trancik, Roger. Finding Lost Space : Theories of Urban Design. New York: Van Nostrand Reinhold, 1986. Print*

Architecture can translate nature and natural elements into spatial experiences of reflection.

Architecture can translate nature and natural elements. According to *The Experience of Nature*, by Rachel and Stephen Kaplan “Verderber (1986) has shown that the quality of the view out the window is a significant factor in the recovery of patients in physical medicine and rehabilitation wards of six hospitals. Roger Ulrich (1984) demonstrated that the content of the view is important in hospital patients’ recovery from surgery, with nature content contributing to faster recovery. Moore’s (1981) study showed a dramatic relationship between inmates’ use of health care facilities at a large federal prison and the view from their cell. Those whose view was of other inmates sought health care most often. Of the inmates whose views were of areas outside the prison building, the ones who looked out onto the surrounding farmland sought health care least of all. West’s (1986) study further supported these findings in another prison setting.” These examples amplify that nature is one of the phenomenon of basic human needs that is required for architecture to translate. Nature can transcend mind, body, and spiritual health. Well-placed doors and windows can visually connect people to views of nature, which has many positive benefits related to health and healing. Ulrich and others have demonstrated that visual access to nature, for example, can reduce recovery time among hospital patients. Through a window; one could view the landscape, feel the warmth of the sun, or the breeze of the wind.

This simple architecture feature could connect the user to nature. Other ways that architecture can echo natural elements is through the implementation of the building materials – clay, sand, rock, stone, straw, wood, water, and etc. ¹⁴

¹⁴ Kaplan, Rachel., and Stephen. Kaplan. *The Experience of Nature : A Psychological Perspective*.Michigan: Cambridge University Press, 1995. Print.

In discussing the relationship between nature and architecture, Juhani Pallasmaa, *The Eyes of the Skin* stated, “A walk through a forest is invigorating and healing due to the constant interaction of all sense modalities; Bachelard speaks of 'the polyphony of the senses,’⁸¹ The eye collaborates with the body and the other senses. One's sense of reality is strengthened and articulated by this constant interaction. Architecture is essentially an extension of nature into the man-made realm, providing the ground for perception and the horizon of experiencing and understanding the world. It is not an isolated and self-sufficient artifact; it directs our attention and existential experience to wider horizons. Architecture also gives a conceptual and material structure to societal institutions, as well as to the conditions of daily life. It concretises the cycle of the year, the course of the sun and the passing of the hours of the day.” (p41). Nature can stimulates the senses from within. It promotes the interaction of the human senses and connection to the environment. When architecture is form with natural elements, the experience could altered perception from within. The awareness and presence sense broaden. Architecture can introduce nature through natural elements with material design that transform the feel of the coldness of institutions and the mundaneness of routine.¹⁵

¹⁵ Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*.Chichester: Wiley-Academy, 2005. Print

In the American Institute of Architects article of 2013, *Designing Communities, Shaping Health*, the spaces architects create can have a soothing and calming effect that reduces stress through mitigation of noise, allowing visual connections beyond the building or within it, and providing access to natural daylight. Research indicates that short-term exposure to noise may negatively affect mental well-being; prolonged exposures may exacerbate other issues, including aggression. Recreation spaces - parks, courtyards, and lounges are likely to improve physical and mental health, researchers are beginning to develop empirical data. Using mobile electroencephalography (EEG) technology, for example, a group of Scottish scientists recently found that taking a 25-minute walk through a park reduces frustration and increases meditative thinking.¹⁶

Architecture can affect mental health through space, form, materials, function, and light.

People in the United States are noticing some senses that have been neglected. Due to the increase usage of technology, we have deprived our senses through experiences that aren't created. Around the world, architects are trying to "re-sensualize" architecture through a strengthened sense of materiality and hapticity, texture and weight, density of space and materialized light.

¹⁶ Local Leaders; Healthier Communities Through Design . Rep. N.p.: n.d AIA architects. Web.

According to Juhani Pallasmaa, *The Eyes of the Skin* “Architecture can affect mental health through form. An architectural work is not experienced as a collection of isolated visual pictures, but in its fully embodied material and spiritual presence. A work of architecture incorporates and infuses both physical and mental structures. The visual frontality of the architectural drawing is lost in the real experience of architecture. Good architecture offers shapes and surfaces moulded for the pleasurable touch of the eye. 'Contour and profile (modenature) are the touchstone of the architect,' as Le Corbusier put it, revealing a tactile ingredient in his otherwise ocular understanding of architecture.⁹³” (p44) Architecture affects mental health through form not just visual. The mind takes in account the full body of work including the materials and spiritual presence. Architects utilize both the physical and mental aspects of a structure. In building a structure, good architecture can create an experience that will make you feel like you can touch with your eye.

Architecture can affect mental health through materials. Pallasmaa Pallasmaa also mentioned , “natural materials – stone, brick, and wood allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use. All matter exists in the continuum of time; the patina of wear adds the enriching experience of time to the materials of construction.” (p31).¹⁷

¹⁷ Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*. Chichester: Wiley-Academy, 2005. Print

Architecture can influence and improve mental health through materials. Natural elements such as clay, stone, brick, and wood allows our mind to interoperate what our eyes are seeing. When we see such materials, they allow the brain to break down the process of how it became what it is. Natural materials give age, history, and origin of usage in which enriches the construction.

Architecture can affect mental health through light. According to Pallasmaa, Transparency and sensations of weightlessness and flotation are central themes in modern art and architecture. In recent decades, a new architectural imagery has emerged, which employs reflection, gradations of transparency, overlay and juxtaposition to create a sense of spatial thickness, as well as subtle and changing sensations of movement and light. This new sensibility promises an architecture that can turn the relative immateriality and weightlessness of recent technological construction into a positive experience of space, place and meaning.”¹⁷

¹⁷ Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*. Chichester: Wiley-Academy, 2005. Print

Architecture can provide an aesthetic that can sway or impact negative social stigmas and images that society holds on children behavioral centers.

Architecture had a big impact on the movement of deinstitutionalize mentally ill children. The architectural transformation from warehoused institutions into community based centers helped sway negative social stigmas and had great impact on the process of treatment of the mentally ill. Community based centers are designed to be in small scale and feel more residential. In a smaller scale setting, patients receive more care and attention from the staffs.

The perception and experience of the community based centers are designed to have more involvement with the communities and families. Imbedded in the children community based centers are outreach programs. The outreach programs that are mostly seen in these centers are physical health.¹⁸

Children in the community that need extra help in therapy or education could have access to these centers. Children community based centers are growing and make great difference in society. The negative social stigmas and images on psychiatric facility are outdated. Through the architectural design transformation and the attention to details, the movement of deinstitutionalization has been successful.

¹⁸ Jackie Goldstein. "Community-Based Care Can Reduce The Stigma Of Mental Illness." Health News From NPR (July 2, 2016): n. pag. Web. 26 Mar. 2017.

Chapter 3: Programming

Most children with minor and chronic mental illness that can lead to suicidal thoughts or attempts are stabilized with medical treatment and they remain in the community. Some institutions and facilities are being replaced with treatment-adhere clinics and provide medications that treat these genetically based addiction and diseases. The majority of these clients receive treatment on an outpatient basis. They then remain in their homes with their support of their families. However, for the patients that require inpatient care, Behavioral and Wellness facility design has an incredible effect. According to Cynthia Leibrock, *Design Details for Health: Making the Most of Interior Design's Healing Potential*, the design program must support a normalized lifestyle, patient independence, integration of the family, mental therapy, and physical healing. Design detail can make a significant contribution to achieving these goals. The best facilities return control, efficacy, and independence to their clients. Individuals may select their open artwork, choose a room in their favorite color, and regulate their environment with individual HVAC and lighting controls. Piped-in music is replaced with personal choice of music in each room, and spaces are differentiated to support individual activity choices. Clients should be able to choose between lite or dim areas, quiet and noisy rooms, private and public spaces.¹⁹

¹⁹ Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print.

Residential Treatment Centers in Maryland

There are eleven Residential Treatment Centers in Maryland for children and adolescents. Only one center treats children from five to thirteen years old. Six of the locations are in Baltimore. The rest of the facilities are scattered in the suburban areas, Frederick, Montgomery, Anne Arundel, and Cambridge. The most significant aspect of this data is that Prince Georges County do not have any children and adolescents residential treatment center. Eugenia Greenhood, coordinator for Child and Adolescents in Prince George's County Health Department of Behavioral Health Services conveyed that since the county does not have a residential treatment center, all of the children and adolescents are being sent to other counties and even to District of Columbia for treatments. The children and their families would have to travel great distances. This situation could delay the treatment of the children and could have a negative outcome. These eleven facilities are operated by private and public sectors. They are specifically licensed to serve children with serious mental health needs. Ideally, the patients stay in Residential Treatment Centers should be short and safe as possible. In most cases, the youth should begin to reintegrate with their family and community soon after placement. According to the Maryland Coalition for Families, long term stays in Residential Treatment Centers have not been prove to produce more positive outcomes than shorter stays. The average stay is about three to eighteen months. Cases are reviewed regularly to determine if the child is able to return to their home and community.²⁰

²⁰ "Maryland Coalition." Residential Treatment Centers. N.p., n.d. Web. 26 Mar. 2017. <<http://www.mdcoalition.org/resources/pages/residential-treatment-centers>>.

Eleven Residential Treatment Centers in Maryland

ADOLESCENT + CHILDREN RESIDENTIAL TREATMENT FACILITIES, MARYLAND

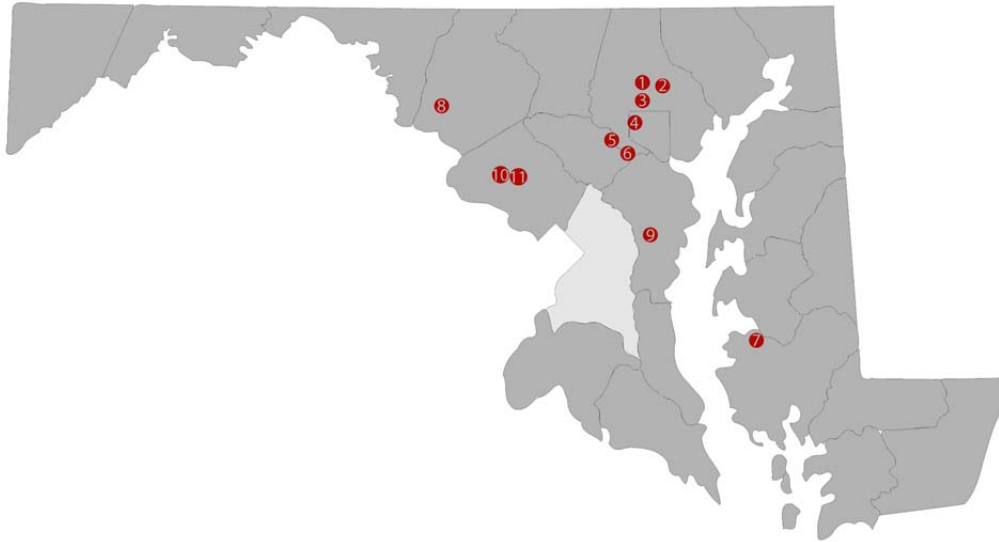


Figure 15: Maryland Residential Treatment Centers
Map created by author - Thuy Do

St. Vincent's Villa
Associated Catholic Charities
Co-ed: 5-13 years old
95 Beds
Visited by Author



Figure 16: Front Driveway Looking at Building
Photo by Author: Thuy Do

Building Layout



Figure 17: Diagram by Author - Thuy Do

Berkeley & Eleanor Mann Residential Treatment Center
Sheppard Pratt Health System
Coed: 12 - 18 years old
68 Beds
Visited by author



Figure 18: Front Façade
Photo by Berkeley & Eleanor Mann Residential Treatment Center

Building Layout



Figure 19: Diagram by Author - Thuy Do

Regional Institute of Children and Adolescents (RICA)
MD Department of Health & Mental Hygiene
Co-ed: 12-18 years old
45 Beds
Visited by author



Figure 20: Front Façade
Photo by Regional Institute of Children and Adolescents (RICA)

Building Layout

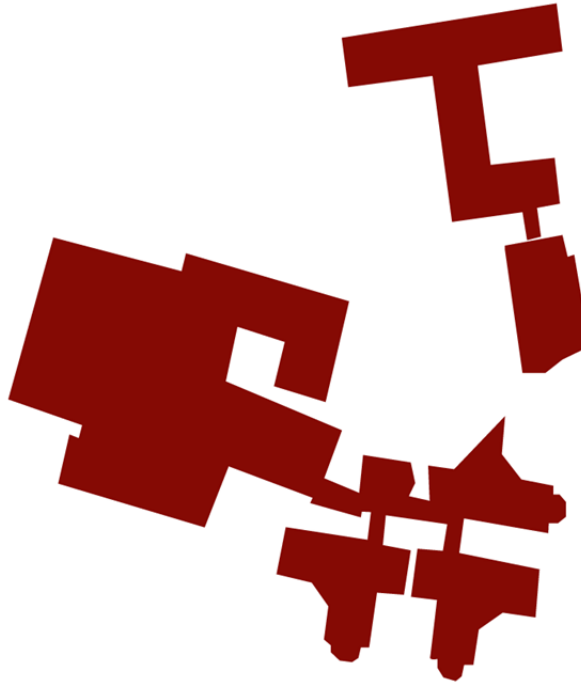


Figure 21: Diagram by Author - Thuy Do

The Jefferson School
Sheppard Pratt Health Systems
Co-ed: 12-17 years old
50 Beds
Visited by Author



*Figure 22: Front Facade
Photo by the Jefferson School*

Building Layout

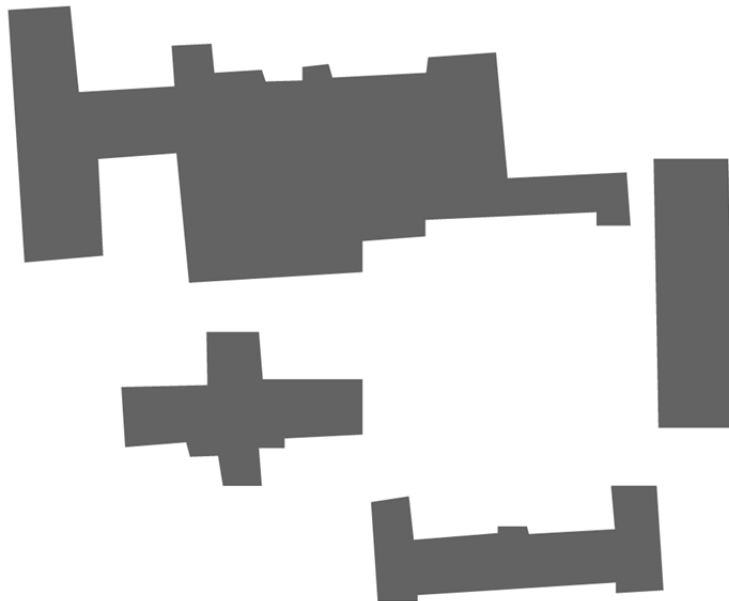


Figure 23: Diagram by Author - Thuy Do

Woodbourne Center
Private Non-profit
Boys: 12 - 18 years old
48 Beds



*Figure 24: Front Façade
Photo by Woodbourne Center*

Building Layout

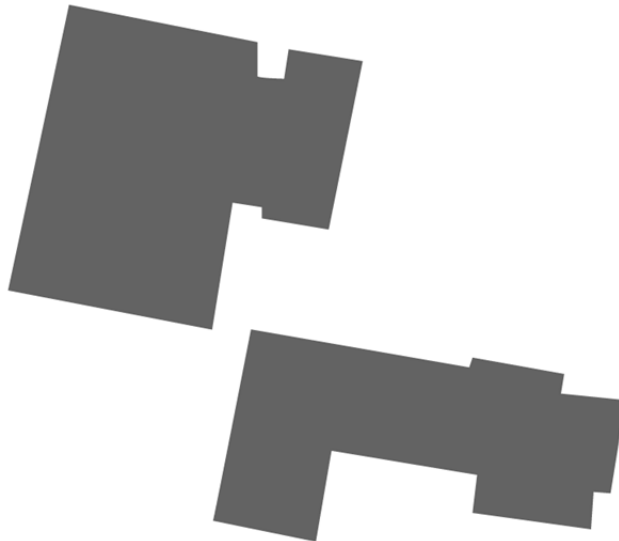


Figure 25: Diagram by Author - Thuy Do

Good Shepard Services
Sisters of the Good Sheppard
Co-ed: 13-21 years old
105 Beds



Figure 26: Front Façade
Photo by Good Shepard Services

Building Layout

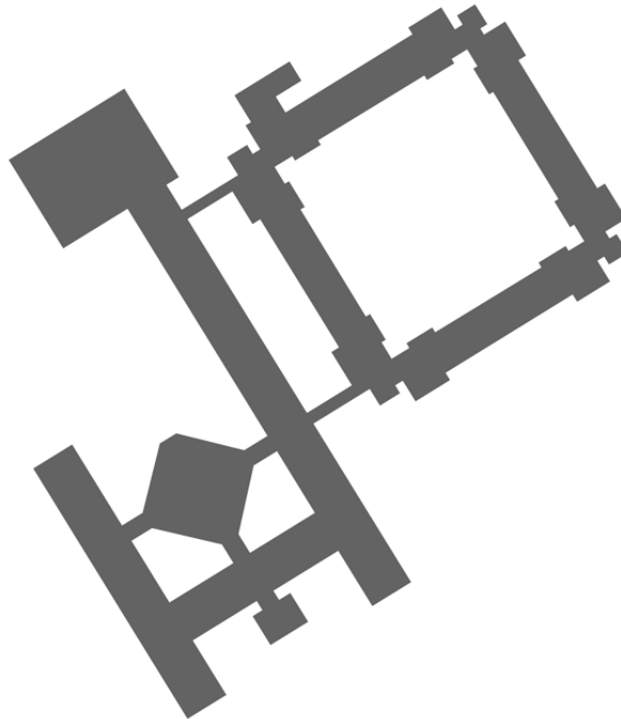


Figure 27: Diagram by Author - Thuy Do

Chesapeake Treatment Center
Boys: 16-20 years old
29 Beds



*Figure 28: Ariel View
Photo by Google Earth*

Building Layout

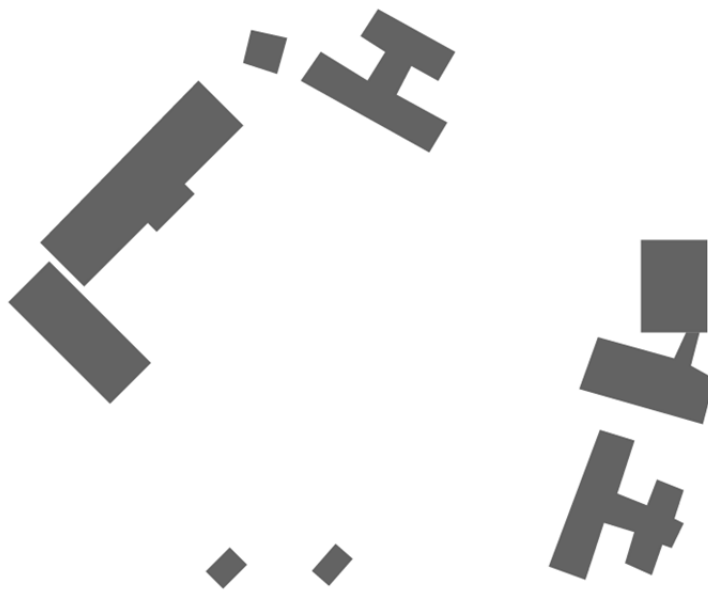


Figure 29: Diagram by Author - Thuy Do

Adventist Behavioral Health Eastern Shore
Adventist Behavioral Health Eastern Shore
Boys: 12-17 years old
Transitional Programs: 17-20 years old
59 Beds



Figure 30: Front Facade
Photo by Adventist Behavioral Health Eastern Shore

Building Layout



Figure 31: Diagram by Author - Thuy Do

The Ridge School of Anne Arundel County
Adventist Behavioral Health
Co-ed: 13-17 years old
30 Beds



*Figure 32: Ariel View
Photo by Google Earth*

Building Layout

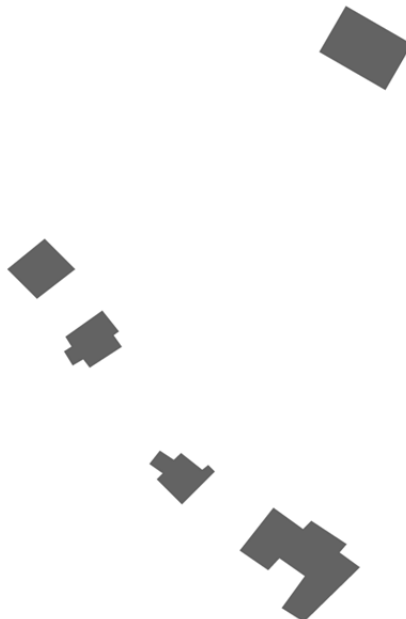


Figure 33: Diagram by Author - Thuy Do

John L. Gildner Regional Institute
MD Department of Health & Mental Hygiene
Co-ed: 11-18 years old
80 Beds



Figure 34: Front Façade
Photo by Google Street

Building Layout

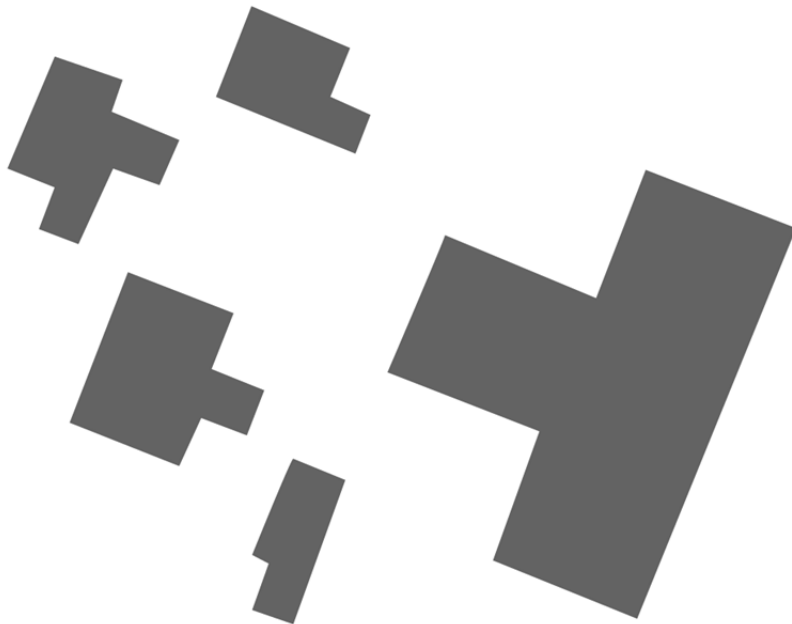


Figure 35: Diagram by Author - Thuy Do

Adventist Behavioral Health, Rockville
Adventist Healthcare
Co-ed: 13-18 years old
83 Beds



Figure 36: Front Façade
Photo by Adventist Behavioral Health

Building Layout

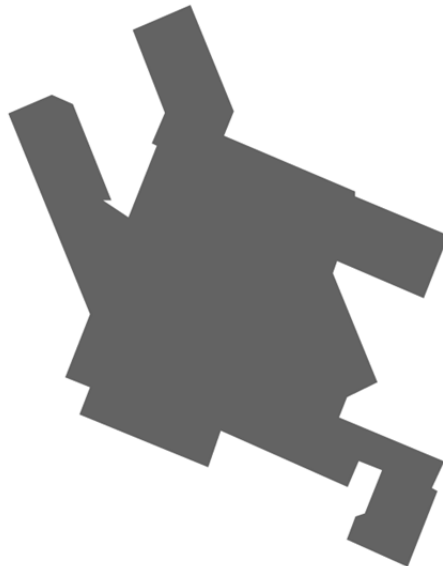


Figure 37: Diagram by Author - Thuy Do

Program of Design

Program (66 Bed Facility)	Quantity	Size Per Room (sq. ft.)	Total Size (sq. ft.)	Adjacency	Ext Window
Lobby Welcome	1	30x60	1,800		yes
Offices					
Main Office				Hub	
Intake / Discharge / Interview	1			in hub	yes
Supervisor	1			in hub	yes
Manager	1			in hub	yes
Head Director	1			in hub	yes
Director	1			in hub	yes
Assistants	2			in hub	yes
Secretaries	2			in hub	yes
Admins	3			in hub	yes
Teachers	8			in hub	yes
Therapists	4			in hub	yes
Pediatricists	2			in hub	yes
Psychiatrists	4			in hub	yes
Social Workers	4			in hub	yes
Copy Room	1			in hub	no
Mailroom	1			in hub	no
Courtyard	1			TBD	N/A
Conference room	1			in hub	yes
Small meeting room	1			in hub	yes
Meeting Room	1			in hub	yes
Staff Room	1			in hub	yes
Staff Bathroom	4			in hub	no
Staff Storage & Lounge	1			in hub	yes
Training Room	1			in hub	no
Emergency response room	1			in hub	no
Cottage A: 5-7 years old					
Single Beds	10	10x10 = 100	1,000	Nurse & Tech Station	yes
Double Beds	x4 (8)	15x20 = 300	1,200	Nurse & Tech Station	yes
Four Beds	x1 (4)	40x40 = 1,600	1,600	Nurse & Tech Station	yes
Family Rooms	1	20x30 = 600	600	Nurse & Tech Station	yes
Children public restrooms	4			Nurse & Tech Station	no
Children baths & showers	3			Nurse & Tech Station	no
Children Assisted baths	1			Nurse & Tech Station	no
Nurses Station	1			Beds	yes
Technician Station	1			Beds	yes
Cottage B: 8 - 10 years old					
Single Beds	10	10x10 = 100	1,000	Nurse & Tech Station	yes
Double Beds	x4 (8)	15x20 = 300	1,200	Nurse & Tech Station	yes
Four Beds	x1 (4)	40x40 = 1,600	1,600	Nurse & Tech Station	yes
Family Rooms	1	20x30 = 600	600	Nurse & Tech Station	yes
Children public restrooms	4			Nurse & Tech Station	no
Children baths & showers	3			Nurse & Tech Station	no
Children Assisted baths	1			Nurse & Tech Station	no
Nurses Station	1			Beds	yes
Technician Station	1			Beds	yes
Cottage C: 11 - 13 years old					
Single Beds	10	10x10 = 100	2,400	Nurse & Tech Station	yes
Double Beds	x4 (8)	15x20 = 300	2,400	Nurse & Tech Station	yes
Four Beds	x1 (4)	40x40 = 1,600	3,200	Nurse & Tech Station	yes

Family Rooms	1	20x30 = 600	600	Nurse & Tech Station	yes
Children public restrooms	4			Nurse & Tech Station	no
Children baths & showers	3			Nurse & Tech Station	no
Children Assisted baths	1			Nurse & Tech Station	no
Nurses Station	1			Beds	yes
Technician Station	1			Beds	yes
Hair Salon	1	20x30	600	office	yes
Clinic	1			office	yes
Therapy rooms	1			clinic	yes
Dining	1			kitchen	yes
Kitchen	1			dining	no
Gym	1			park	yes
One on one classrooms	1			office	yes
Classrooms	1			office	yes
Group Use room	1	2,000	2,000	office	yes
Green house	1	12,000	12,000	park	N/A
Courtyard				park	N/A
Park				greenhouse	N/A
Laundry	1			linen	no
Linen	1			laundry	no
Mechanical Core	1			service rooms	no
Cleaner Storage	1			laundry	no
Storage	1			laundry	no
Service Storage	1			rear	no
Service Loading Dock	1			rear	no
Trash Area	1				
Circulation	25%				
2-3 Entrances					
Vehicular/Parking		10,975	10,975		

Num. Rooms Total sq. ft. 68,000

*Table 2: Program
Table created by author: Thuy Do*

Nature and Natural Light

According to Juhani Pallasmaa, *The Eyes of the Skin*, “light has turned into a mere quantitative matter and the window has lost its significance as a mediator between two worlds, between enclosed and open, interiority and exteriority, private and public, shadow and light.” Windows get used as barrier between indoor and outdoor. Light has broken the barrier of the window and has become a form of matter that has changed from a mediator to a sought after feature.²¹

Access to nature and natural light is critical to treatment. In one excellent research study in *Design Details for Health*, length of stay for depressed patient in sunny rooms average 16.9 days, while those in dull rooms required 19.5 days of care. Sunshine can be incorporated into the interior with skylights, solariums, atriums, and courtyards. Light must minimize shadow, exaggerated images, and sensory distortion.

Some patients develop sensitivity to bright light as side effect of their medications. Draperies should be installed on ceiling-mounted rods and attached with Velcro, not hooks. They should be controlled by wands rather than cords.”²²

²¹ Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*. Chichester: Wiley-Academy, 2005. Print

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Physical and Mental Connection

Today's psychiatric facilities recognize the link between a healthy body and a healthy mind. Treatment should include recreational, physical, and occupational therapy as well as psychiatric treatment. Activity is critical. Many patients are restless and have difficulty with inactivity, especially waiting. Time management is frequently an issue, and this had exacerbated by reactions to psychotropic drugs that reduce the ability to sit for long periods. Provide furniture that rocks, bounces, or swivels safely. Gymnasiums with running tracks, weight rooms, racquetball courts, aerobic dance, spas, and swimming pools had planned in many facilities. It is difficult to motivate some mentally ill people to physically care for themselves. Medication frequently slows metabolism to the point where each motion requires extraordinary effort. It feels like each task is being performed in a vat of molasses. In addition, psychotropic drugs reduce manual dexterity, making tasks like bathing especially difficult. Design elements can be used to increase motivation, providing positive incentives to participate in healthy behaviors. This goal requires imagination; the key is to make each activity fun. For example, a hot tub is more fun than a bath. An active game is motivating than a scheduled exercise regime. With a little creativity, clients can be encouraged to exceed their physical and mental limitations to achieve better health.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Space

Doctor Humphrey Osmond a psychiatrist specialist in the *Design Details for Health*, by Cynthia Leibrock “divides space into sociopetal and socialfugal areas. Sociopetal space brings people together while sociofugal space keeps them apart. Sociopetal space encourages people to discuss personal feelings. For example, personal space is easier to establish around the perimeter of the room, so most socializing takes place in this sociopetal space. The center of the room is less protected; furniture arrangements, area rugs, and lighting, and low partitions can be used to redefine it as sociopetal space. These “behavior markers”- architectural elements supporting specific behaviors, offer a wide range of choices to the patient, articulating the space and maintaining a sense of personal identity.” Space must be clearly defined. Flexible space can be disorientating at best and lead to inappropriate behavior at worst. Orientation to unfamiliar and changing surroundings is problematic for people with mental illness. Unfortunately, flexible space is often justified as a response to ever changing therapeutic techniques. Dayrooms have multiple uses and are filled with too much furniture or equipment, confusing and discouraging patients, forcing them to escape to the security of their bedrooms. Today, inpatient facilities are planned with clear spatial differentiation. Dayrooms have been replaced with clearly define treatment space, individual seclusion spaces, and auditoriums with sophisticated audiovisual equipment.

A public day room is ambiguous space, difficult for patients to understand and control. These rooms provide little to no privacy, which is especially problematic when this is the only space available to patients and their families. Rather than a large, flexible space, several rooms should be planned to support various activities. A lounge for reading may be furnished with large, overstuffed chairs. Another activity area may provide seating around tables for games, hobbies, or study. Boundary definition may be improved by using square tables; round tables make personal space more difficult to define.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living des

Bedrooms

According to Mayer Spivak, a psychotherapist and designer from MIT conveyed that clients “are told by their environment to misbehave,” to stay away from the norm. He also spoke “standing behavior” implied by a space. For example, a bedroom encourages escape through sleep. Therefore, access or ability to see a bedroom is not always desirable during the day when patients are being encourage to face reality, not to avoid it.

Each room should be designed gear toward the personality of the patient. The facility designer should think enough about the patients and their families to offer and preserve a caring atmosphere.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Rooms

Room size also determines sociopetal space, the smaller the room, the greater the social interaction. Research has shown that there is less isolation and less passive behavior in small rooms. Private bedrooms and smaller spaces produce more frequent and appropriate social interaction.” In the patient room, the bed should be placed on a platform rather than on a metal frame that could be disassembled. The mattress should be nonspring for the same reason. Avoid sippers and pockets that could be used to hide dangerous objects. Drawers in the night stand should be difficult to remove and soundly constructed, the wardrobe should have a lockable door or drawer for grooming supplies that require staff supervision during use. When patients are acting out, a quiet room may be necessary. Generally the room is used to calm the patient, but it may also be used to protect patients from harming themselves or others. The patient may be observed in this room, either through safety glass, plastic, or by video camera. Because the patient may be on the verge of suicide, the room may contain nothing more than a bed bolted to the floor, a mattress, and an inoperable window with a view. The bottom of the door must be secured to prevent razor blades, matches, or pills from being passed under. A locked bathroom should be close, if not connected.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Windows and Doors

Windows blinds should be sandwiched between layers of safety glass. For security, emergency windows should be operated from the exterior with special keys and elevators should have a key-only option. Fire door locks should be alarmed. Doors for patient use should have contrasting frames, while doors to dangerous areas or rooms for staff-only use should be visually blended with the wall.. each door must have double-swinging hinges so it cannot be blocked with furniture or by a patient who has fallen. Exposed furniture and door hardware can be tied to another object with belts, stockings, or shoelaces; to prevent barricading, injury, and escape, hardware must be recessed and installed with security screws.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Furniture

In *Design Details for Health*, Cynthia Leibrock mentions that in one fascinating study at a maximum-security hospital, furniture was rearranged from non-social patterns into group seating. The wards with the rearranged furniture had a lower rate of patients requiring seclusion and a lower rate of causality incidents. In addition, the nurses reported improved attitudes and social interactions.

Lightweight furnishings are used in flexible spaces because they are easily rearranged, but they are also easily used as weapons. Movable furnishings also must be planned to discourage injury and suicide attempts. Furniture must be heavy and difficult to throw. Sharp edges must be eliminated. Furniture must not place near the entrance to the room, where it could be used in a surprise attack. A tall piece of furniture can be tipped on an attendant or another patient, and some hardware can be disassembled and used as weapons. Patients can be injured by rocking chair and tabletops until they come loose. A sled base stabilizes a chair and the tabletop should be permanently attached to the base. Edging, like vinyl T-moldings, can be picked apart and removed.²³

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Finishes

About twenty years ago, people with mental illness were confined in hostile environments featuring bars on the windows, bars lighting, medical furnishings and equipment, and sterile finishes. These facilities provided custodial care with very little treatment or hope for recovery.

In *Design Details for Health*, Cynthia Leibrock comments that “privacy and confidentiality can also be supported by design detail, including sound-absorbing finishes like non-accessible acoustical ceiling products. Limit sound transmission and place windows and doors away from sources of noise. Carpet can be effective in deinstitutionalizing the space, reducing the ambient noise while protecting patients from falls. Carpet borders may be problematic for people with compulsive behavior disorders; they may be unwilling to step on the edge or move into a space defined by a border.”²²

Abnormal behavior can be reduced with careful attention to design details. A therapeutic environment must be understandable, not filled with confusing finishes or furnishings that can be mistaken for something else. Faux finishes or even plastic imitations of metal or wood can be visually confusing. Optical illusions can be caused by glare in the environment.

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

One study of adolescents documented that most aggression takes place in. In addition, ramps can cause the illusion of a foreshortened space; users appear to rapidly increase in size as they come down the ramp. corridors, entries, and other areas of transition. Patient ownership must be clearly defined in these spaces. Caregivers should assume a hands-off approach, allowing patients and their families to care for themselves. The public phone should be tucked into a private alcove where others are less likely to invade personal space. In the entry, the doorbell and staff phone may be answered by a patient. Patients are encouraged by these details to take ownership and responsibility for their lives.

Finishes should be tamper-proof and virtually indestructible, but not institutional. Color and pattern can make a tremendous contribution if carefully selected. Some patterns are too distracting for clients who have difficulty maintaining concentration for long periods. Many have problem screening out external stimuli. Excess clutter, overhead announcements, noisy pedestrian traffic, and vacuum cleaner noise are examples of negative distractions.

Wood adds warmth without excessive distracting pattern. It is also easily maintained and repaired. Lightly patterned wall covering is also easily maintained. It should be specified in commercial weight and 108 inches' widths for a seamless installation. Wood guards prevent patients from picking at the edges.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Lighting

In *Design Details for Health*, Cynthia Leibrock discusses “intimacy can be encouraged by soft natural lighting and variety in the color and texture of finishes. A quiet, soft environment can help the patient to stabilize and return to everyday life.”²²

When people are in an emotional state their senses tend to change from a rational state of mind to more archaic, their vision and hearing worsens, touch and smell declines, and light and shadow contributes to these weakening senses. Pallasmaa states “an efficient method of mental torture is the use of a constantly high level of illumination that leaves no space for mental withdrawal or privacy; even the dark interiority of self is exposed and violated.”²²

Signage

Signage must be clear, consistent, and redundantly cued. Provide landmarks every twenty feet; memorable personal cues like collections and client art are more effective than unfamiliar cues in improving orientation. Even a client bulletin board can serve as a personal cue. For safety, use tape on the bulletin board, not pins or tacks. Orientation can also be improved by posting the day and date in the bulletin board. Crossing off days on a calendar can be discouraging, reinforcing a sense of lost time.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Interiors Details: Pattern, Texture, and Contrast

Converging lines created by contrasting baseboards, wainscoting, valances, and handrails are perceived as a confusing pattern to people with concentration differences. This problem is most apparent at the end of a corridor. Blend these elements together into a monochromatic color scheme. This technique can also visually reduce the appearance of a long institutional corridor.

A lower ceiling helps a room appear cozier and less institutional. In addition, many people in wheelchairs or on gurneys are more comfortable with a lower ceiling height. Pattern can be used to visually lower an existing ceiling height, and warmer colors can reduce the perceived ceiling height as well. Orange and red tones come to focus behind the retina and cause the surface to visually advance or lower, while blue and green tones come to focus in front of the retina and appear to recede.

Contrast between the wall and the floor helps to define boundaries. A contrasting door frame draws attention to the doorway. Because most doors are left open, the molding should contrast with the walls, not necessarily with color of the door. In the bathroom, provide contrast between the countertop and bowl. Contrasting toilet seats may help in seeing the edge of the toilet.

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Visually confusing mirrors produce patterns that are distracting and can make concentration and orientation difficult. For people with schizophrenia and others who suffer from distortion of perception, keep colors and textures as unambiguous and understated as possible.

Limiting textures and colors in interior décor is helpful for the many people with mental illness who are susceptible to sensory overload. Low-intensity colors, especially for background surfaces, are most appropriate for this population.

People who spend much of the day in bed may grow tired of facing a patterned or highly textured wall covering. Use strong patterns only on walls adjacent to or in back of the bed. Even in these locations, texture and pattern may produce a response of stimulation rather than relaxation.

Perforations and other ceiling patterns may be visually confusing. Allowing clients to control the ceiling pattern can actually reduce stress. Clients may choose to project videotapes on the ceiling or suspend artwork, a technique frequently used in doctors' examination rooms. Stripes in the wall can appear to be bars and wavy patterns can appear to be in motion, affecting mobility. Texture makes tones appear darker, absorbing important ambient light.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Value contrasts of more than two digits on the gray scale are adequate to increase the imagery of objects. The gray scale consists of ten increments from black to white and can be found illustrated on the back of many printer's rules.²²

Meeting Rooms

In terms of office meeting rooms, there should be a variety of sizes for different types of functions. For instance, office meeting room is more casual and the size depends on the number of staff. A conference room that is used to meet with outside sectors or for special occasions needs to be more formal and grand.

Family therapy rooms should also be considered. These spaces are planned for privacy but are sometimes used by therapists for observation of family dynamics. Acoustics are primary consideration; assure control of both ambient and transmitted noise.

Family-centered design softens the blow of admitting a family member to the hospital and encourage members and friends to visit. A family activity area for socializing, dining, and entertaining can be planned, perhaps with a small kitchen for preparing snacks and meals.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Kitchen

“For the safety of patients, controlled access should be planned for the kitchen. Of course, all sharp utensils must be locked away, and the temperature of hot water should be controlled. Small appliances should be permanently installed; perhaps a refrigerator, a toaster oven, and a microwave (which is considered safer than a range). Cabinets should be within reach without using stools or chairs.”²²

Fixtures

“Facilities must protect patients from physical harm, especially self-induced injury. Specific breakaway closet rods and hooks and flush door hardware to prevent suicidal patients from hanging themselves. Recess plumbing, lightbulbs, and sockets. Diffusers, switches, light fixtures, and grilles must be installed with tamper-proof screws that require a special tool to remove.”²²

“Sharp objects must be eliminated. Fixtures and artwork must not have glass components; mirrors must be specified in laminated glass. Razor blades can be hidden behind baseboards; glue and screw the base to the wall and eliminate the base in closed unites.”²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Bathrooms

“Bathrooms are particularly dangerous and difficult to detail. Excessive thirst is a common reaction to psychotropic drugs, resulting in increased demand for bathrooms. Exposed plumbing could be disassembled and used as a weapon; it must be covered in each bathroom. Use toilets with flush valves that cannot be disassembled rather than toilets with tanks. Shower heads must be recessed and activated by sensor, sink, or toilet. Install a central drain in each bathroom to handle the overflow. Ground –fault circuit interrupters and fail-safe touch controls must be specified. Bathroom shelves and toilet paper holders must have collapsible connectors. Shower curtains must have breakaway Velcro to foil suicide attempts. Curtains must be ceiling mounted to prevent the rod from being used as a weapon.”²³

Corridors

Dr. Humphry Osmond of Princeton mentioned in an article in hospital design stated, “Long and seemingly endless corridors are disturbing to both the mentally ill and to mentally well people. They encourage the sort of distortions of perception which often increase anxiety. Ambiguous spaces where size extent and purposes are not clear produce feelings of insecurity and even of panic among those familiar with them.” Daylighting and access to nature in stairs and hallways has been shown to reduce stress.²²

²² Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print. Wiley series in healthcare and senior living design; Wiley series in healthcare and senior living design.

Chapter 4: Site Selections

According to Eugenia Greenhood, Child and Adolescent Coordinator of Prince George's County Health Department Behavioral Health Services, picking a site for a Children Residential Treatment Centers to be located could be done one of two ways: choose a site that already has an existing structure that can be adapted or create something new. Transportation could be an issue for many families in the County, the ideal location for a facility would be somewhere that is centrally located and accessible by public transportation or major highways. This allows for families to participate in family therapy on site and to be a visiting resource more often.

Potential Site 1: Capitol Heights, Prince Georges County

Capitol Heights is a town in Prince Georges, Maryland. The population in 2010 was about 4,337. Developments such as medical facilities and restaurants near the Capital Heights Metro Station are built to support the community. The Washington Redskin Station is located near the I-95 and I-495 Highways. The potential site is about 216,000 square foot, 400 foot by 540 foot. It is conveniently about two miles away from the highways. It is a mile away from the Addison Metro Station to the North. There are frequent bus stops on almost every block. The potential site is nested in the middle of residential a plot. Cabin Branch Stream located to the left of the site. There are two Elementary Schools, two Middle Schools, a high school, and an Art school near the site. There are many recreation centers in the surrounding neighborhoods. In addition, there are many parks in the Capitol Heights site, ranging from big memorial park to mini neighborhood playground.²³

²³ "Capitol Heights, Maryland." *Wikipedia*. Wikimedia Foundation, 21 Mar. 2017. Web. 01 Apr. 2017.

Capitol Heights Transit

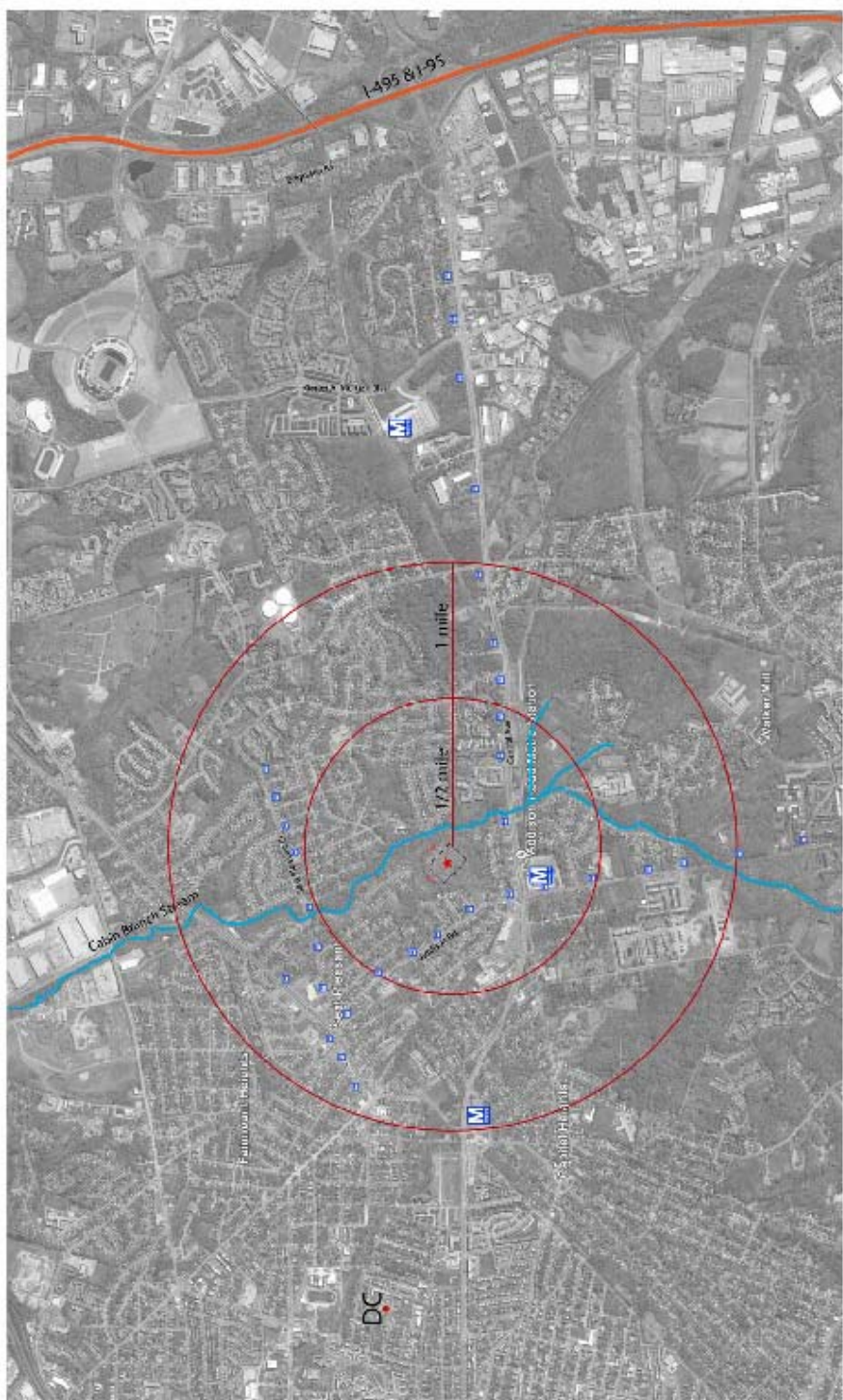


Figure 38: Diagram by Author - Thuy Do

Capitol Heights Schools

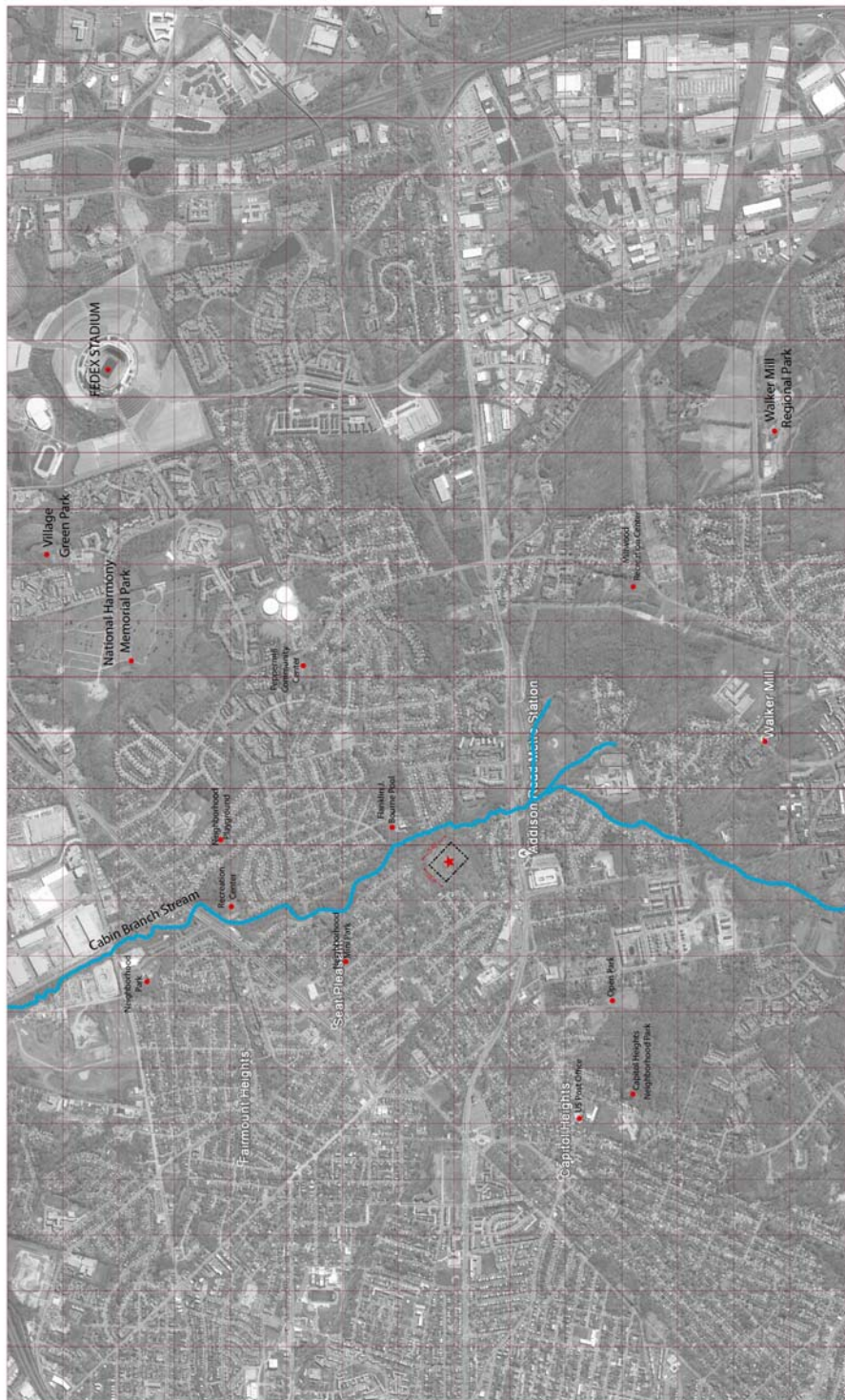


Figure 39: Diagram by Author - Thuy Do

Capitol Heights Recreation Centers and Parks

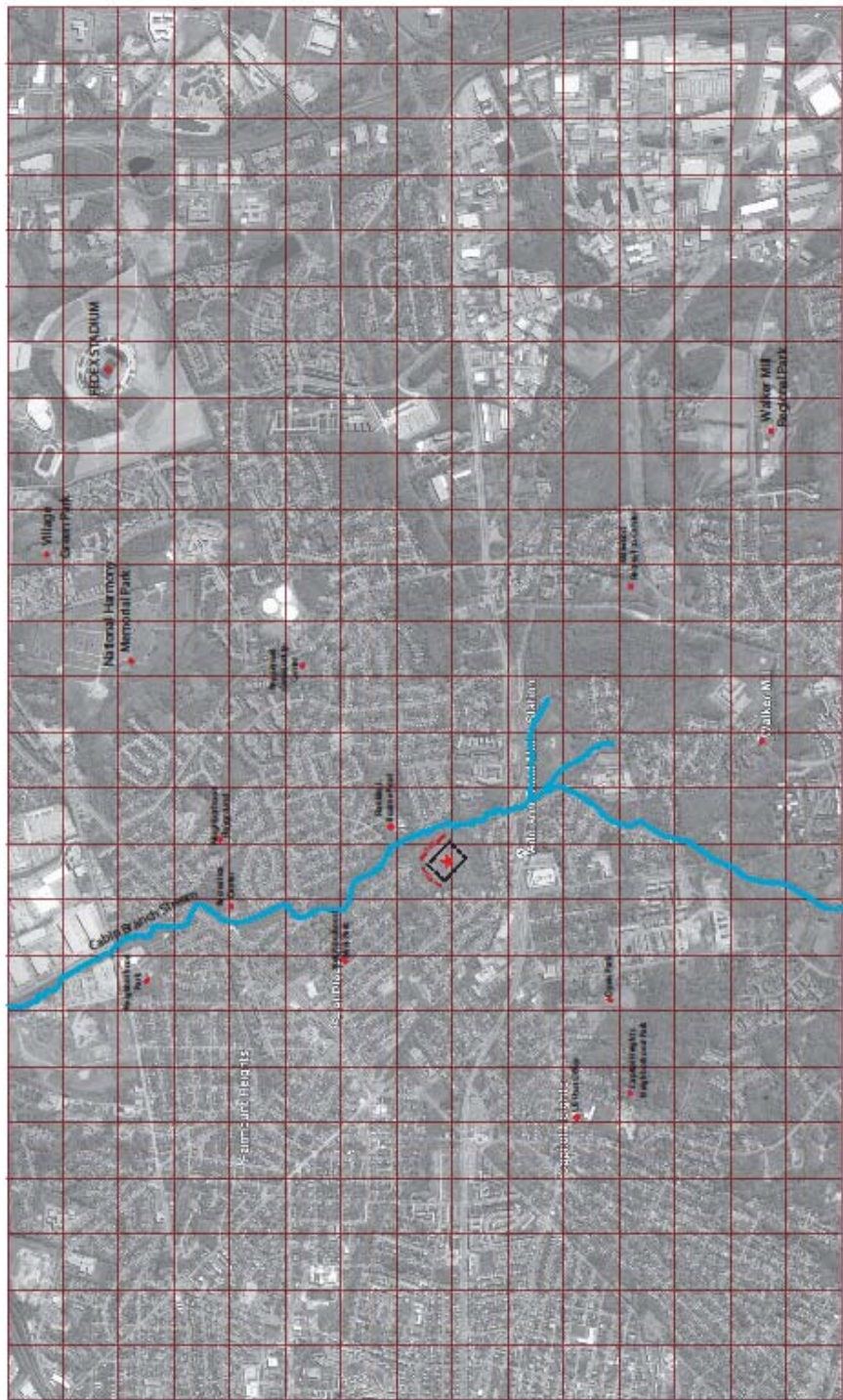


Figure 40: Diagram by Author - Thuy Do

Capitol Heights Amenities

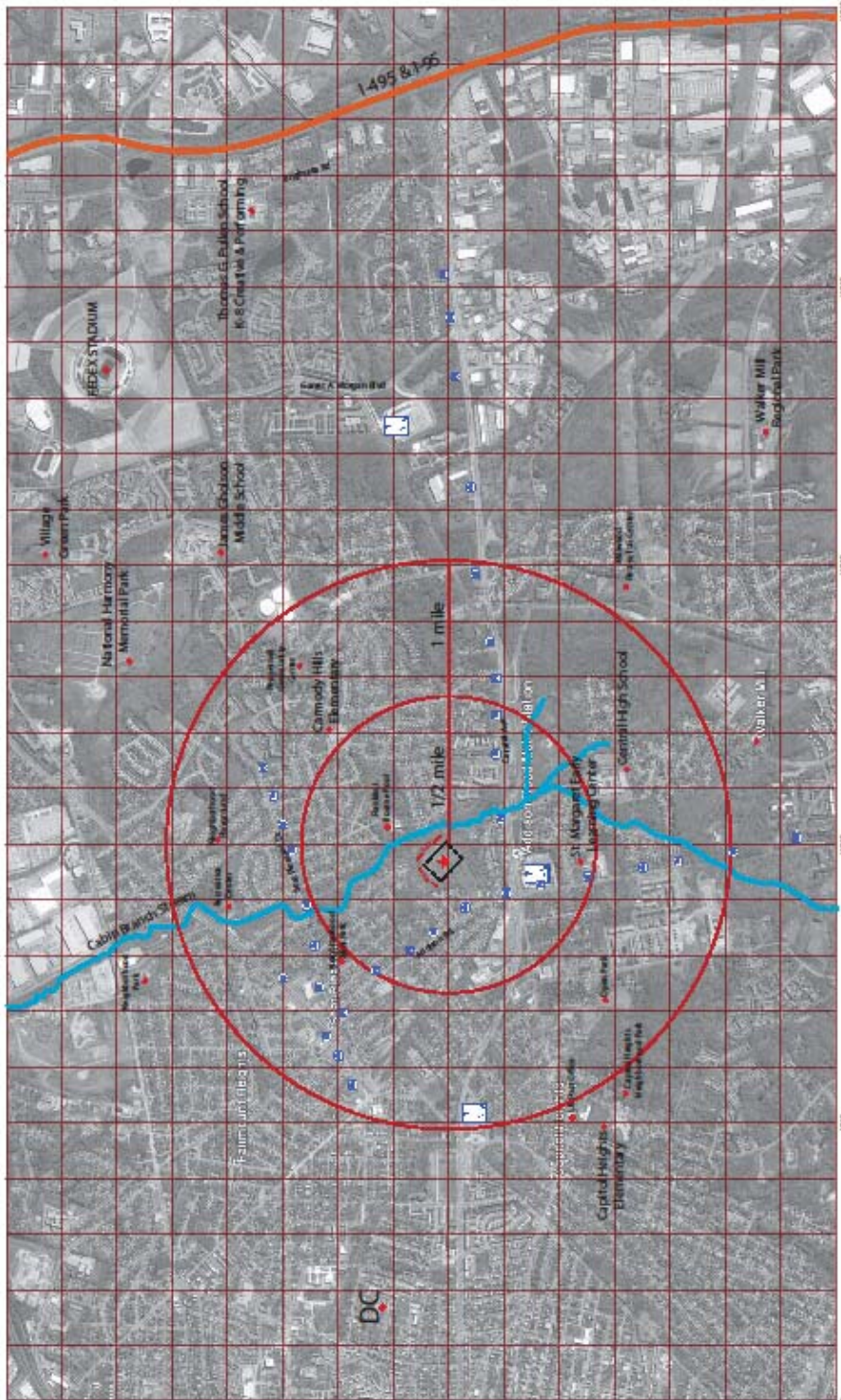


Figure 41: Diagram by Author - Thuy Do

Potential Site 2: Cheverly, Prince Georges County

Cheverly is a planned neighborhood since 1918. In 1931, the town had incorporated. The houses style that could be found in the Cheverly neighborhood are bungalows, Cape Cods, Sears, and McClure. Many amenities stood out at this location. The most important is the Prince Georges hospital. Cheverly is known for its oak trees canopy. Cheverly is located between major highways, Route 50 and Route 202, and only couple minutes form the DC line. In addition, the Cheverly Metro station is very assessable trough public transit (Metrorail or Metrobus) or automobile. There are twp elementaty schools in Cheverly, Gladys Noon Spellman Elementary and Bladensburg and Robert R. Gray elementary. The middle school that is serving the neighborhood is William Wirt and G. James Gholson. Bladensburg and Fairmont Heights are the high schools in Cheverly neighborhood. There are several parks and trails in the neighborhood. In addition to several recreation facilities, there is an performance art center, Publick Playhouse.²⁵

²⁴ Brocker, Jim. "Cheverly Is a Neighborly Niche in Prince George's County." The Washington Post. N.p., 22 Nov. 2013. Web. 1 Apr. 2017.

Town of Cheverly

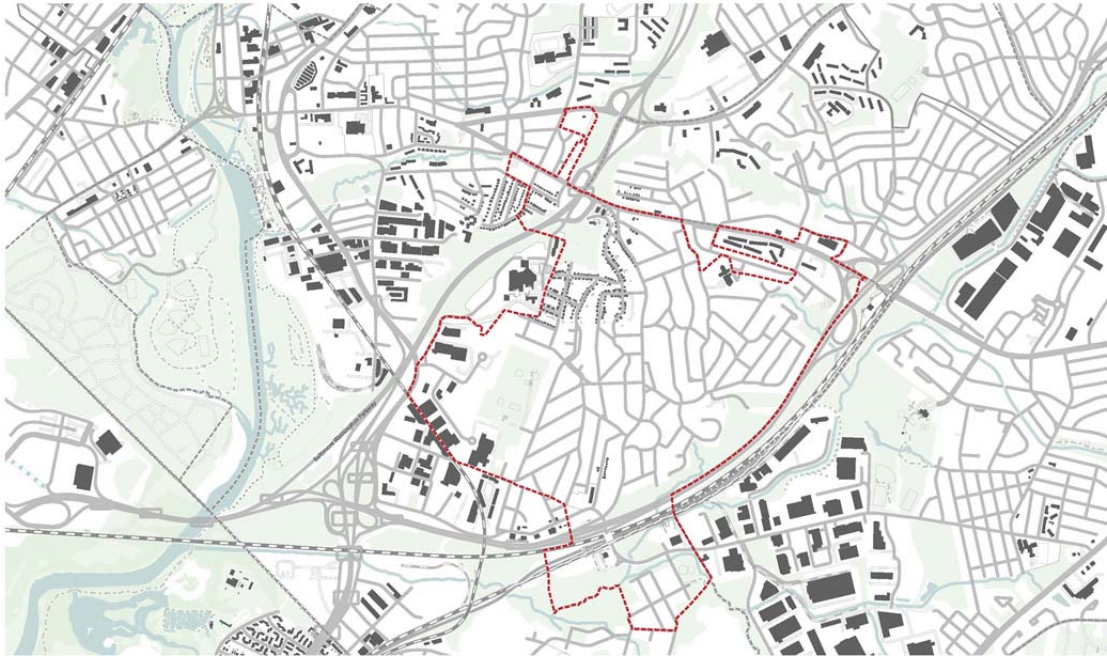


Figure 42: Diagram by Author - Thuy Do

Cheverly Transit

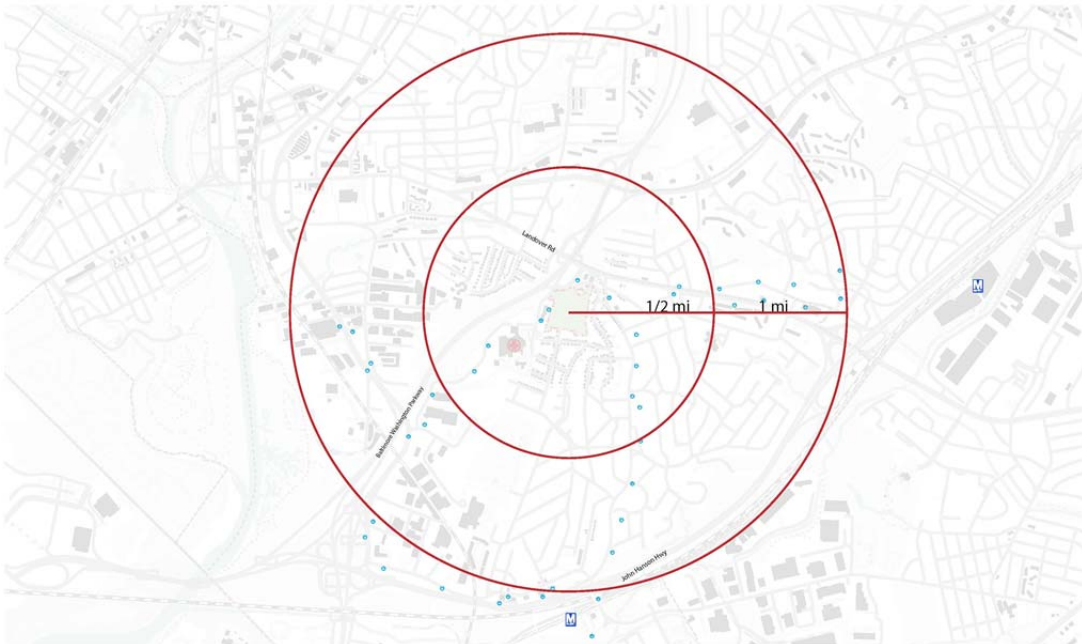


Figure 43: Diagram by Author - Thuy Do

Cheverly Amenities

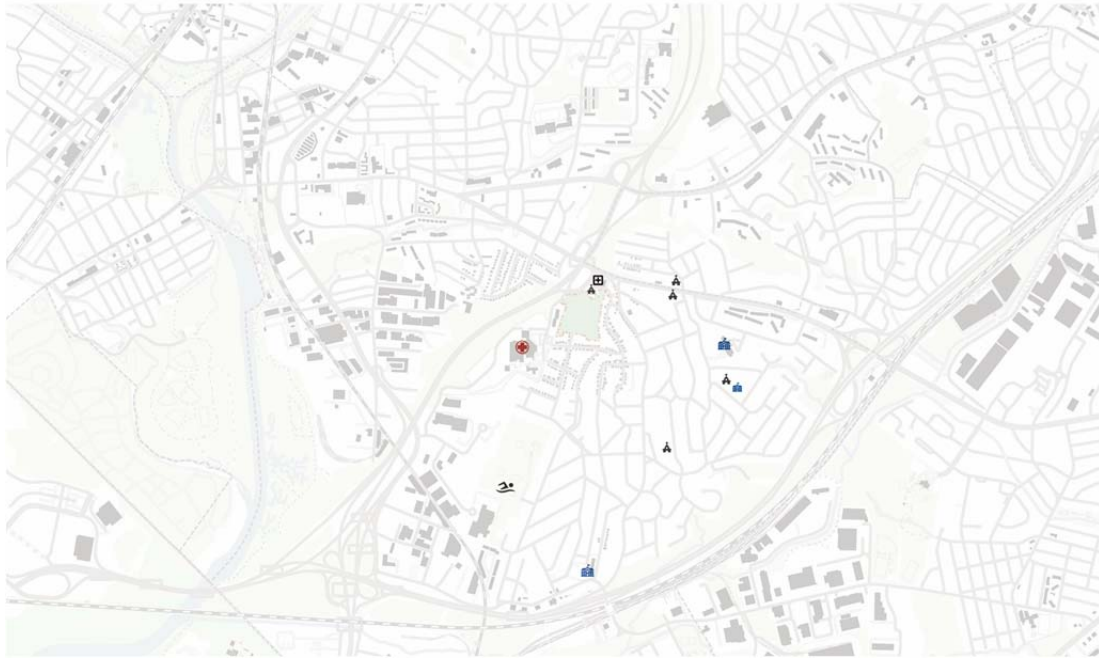


Figure 44: Diagram by Author - Thuy Do

Cheverly Parks and Waterways

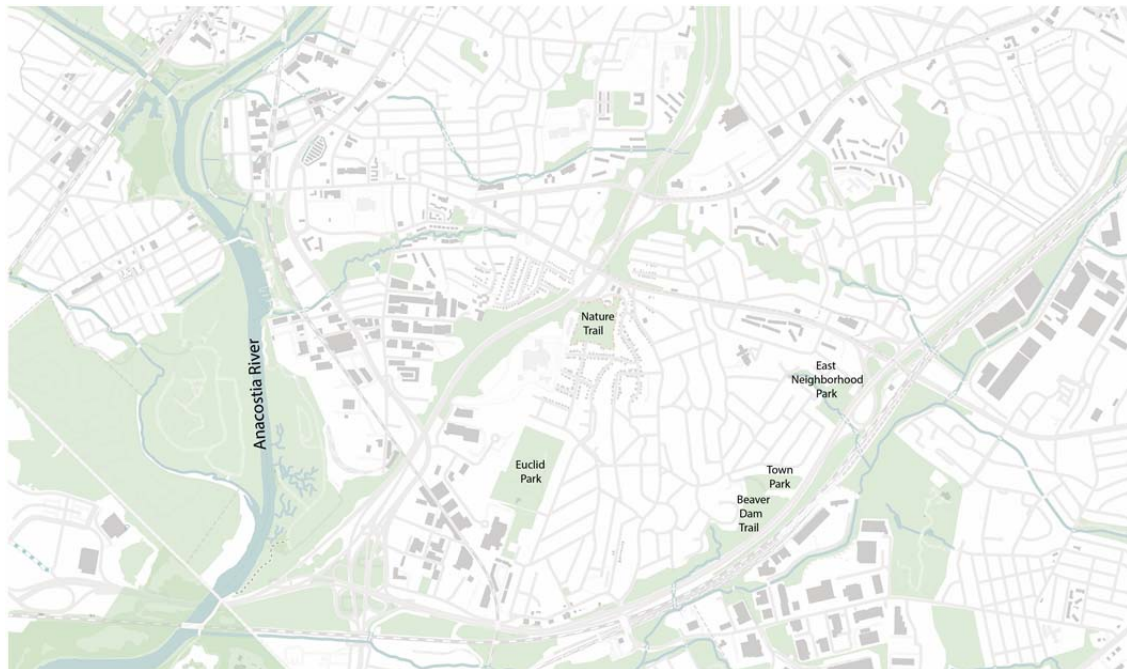


Figure 45: Diagram by Author - Thuy Do

Cheverly Pathway and Nodes



Figure 46: Diagram by Author - Thuy Do

Cheverly Views



Figure 47: Diagram by Author - Thuy Do

Cheverly Soft and Hard Edges

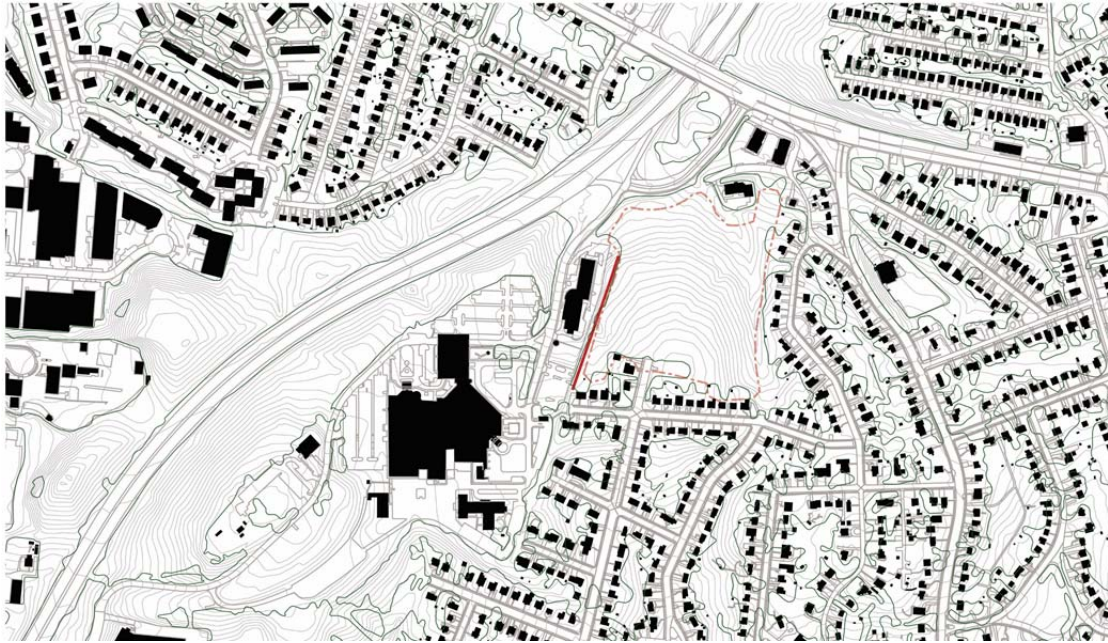


Figure 48: Diagram by Author - Thuy Do

Cheverly Sun Diagram

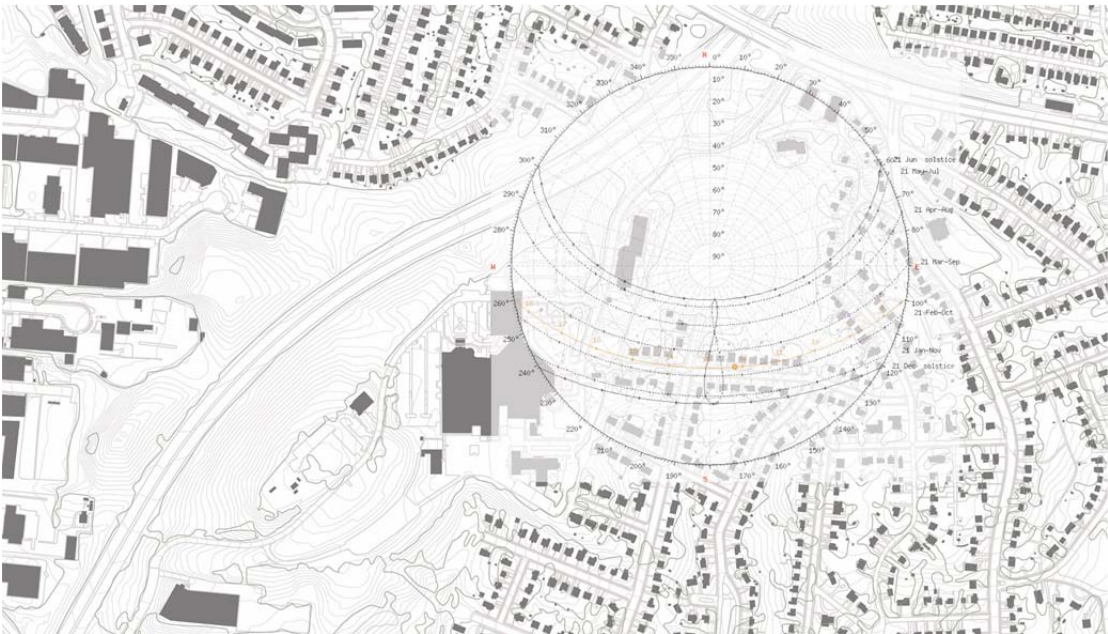


Figure 49: Diagram by Author - Thuy Do

Cheverly Wind Diagram

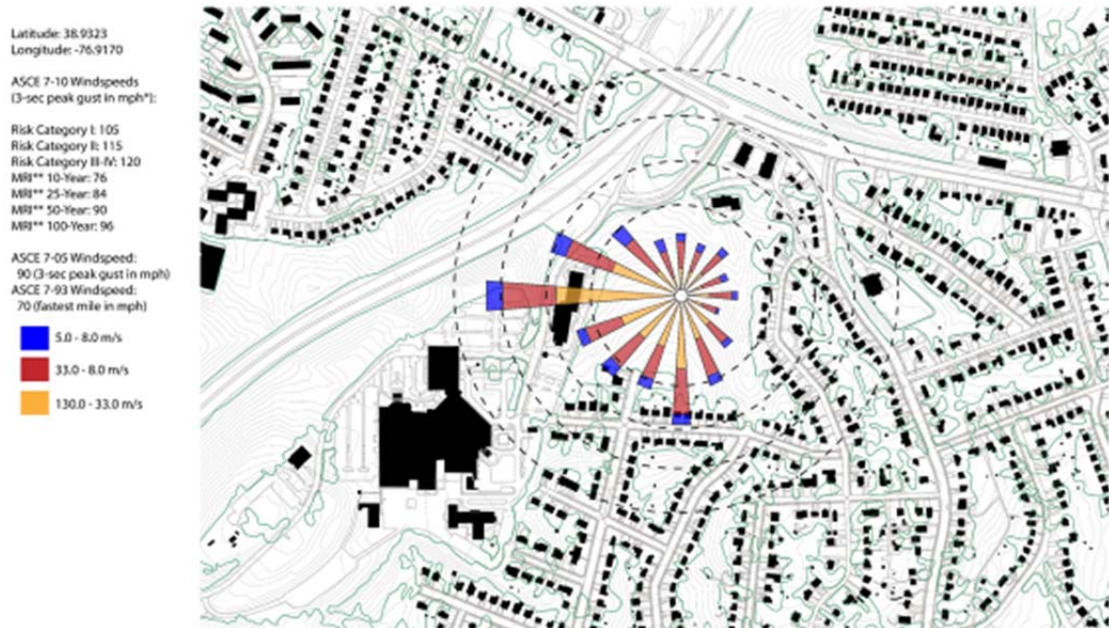


Figure 50: Diagram by Author - Thuy Do

Cheverly Park



Figure 51: Photo by Author – Thuy Do

Cheverly Health Department



Figure 52: Photo by Author – Thuy Do

Cheverly Hospital



Figure 53: Photo by Cheverly Hospital

Cheverly Homes



Figure 54: Photo by Google



Figure 55: Photo by Google

Cheverly Elementary School

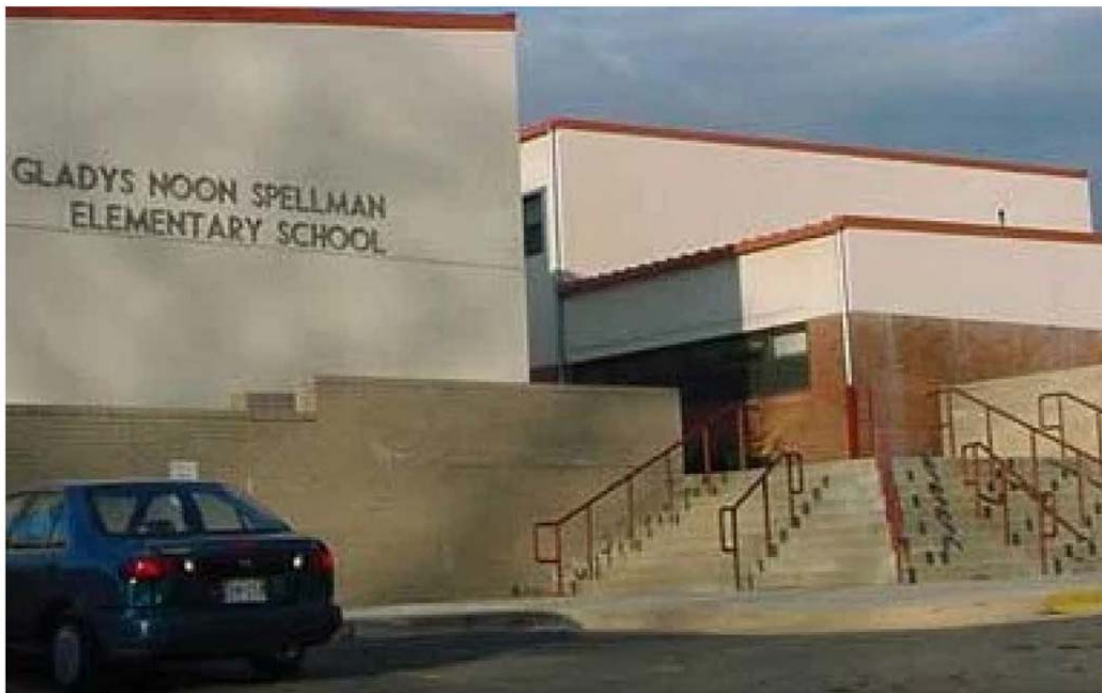


Figure 56: Photo by Gladys Noon Spellman Elementary School

Cheverly Elementary School Drop-Off



Figure 57: Photo by Google

Chapter 5: Conceptual Design

Precedents

Children's Center for Psychiatric Rehabilitation, 2006

Architect: Sou Fujimoto

Location: Hokkaido Prefecture, Japan

Building Area: 157,045 sq. ft.

50 Beds

New structure



Figure 58: Photo by www.archdaily.com

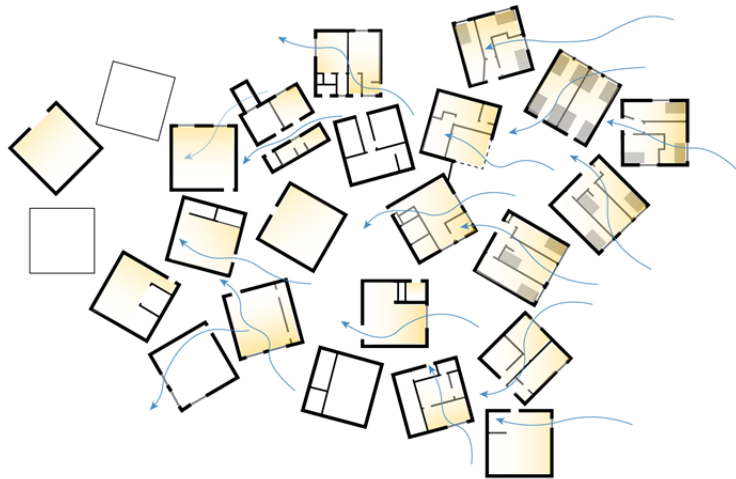


Figure 59: Floorplan Diagram by Author - Thuy Do

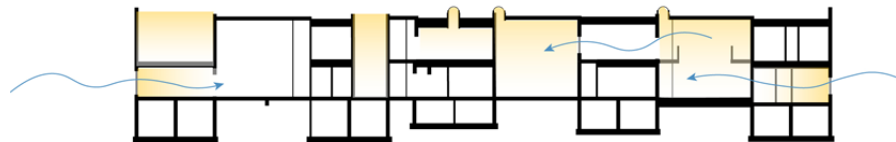


Figure 60: Section Diagram by Author - Thuy Do

Children Esther Koplowitz Foundation, 2015
Architect: Hans Abaton
Location: Madrid, Madrid, Spain
Building Area: 25,295 sq. ft.
36 Beds
Addition to existing structure



Figure 61: Photo by www.archdaily.com

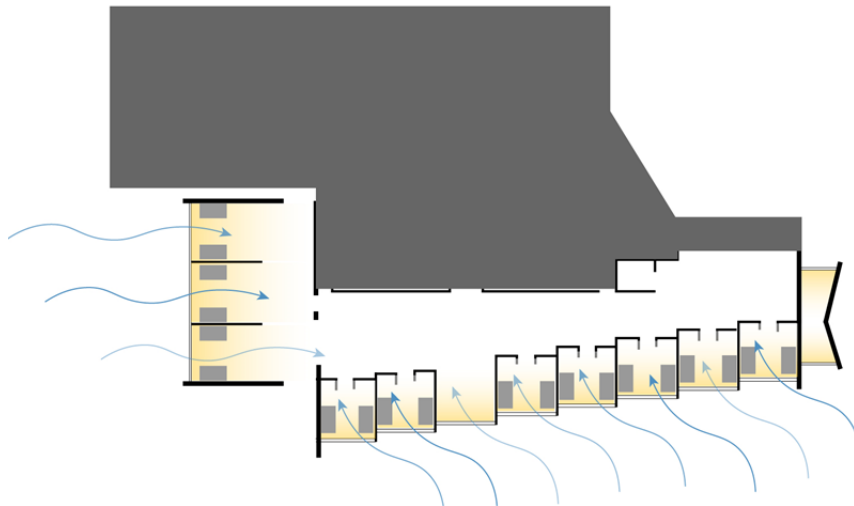


Figure 62: Floorplan Diagram by Author - Thuy Do

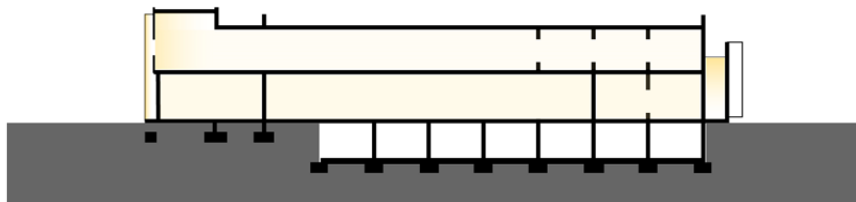


Figure 63: Section Diagram by Author - Thuy Do

Senior Mornington Centre, 2007
Architect: Lyons
Location: Mornington, Australia
Building Area: 48,437 sq. ft.
30 Beds
New Structure



Figure 64: Photo by www.archdaily.com

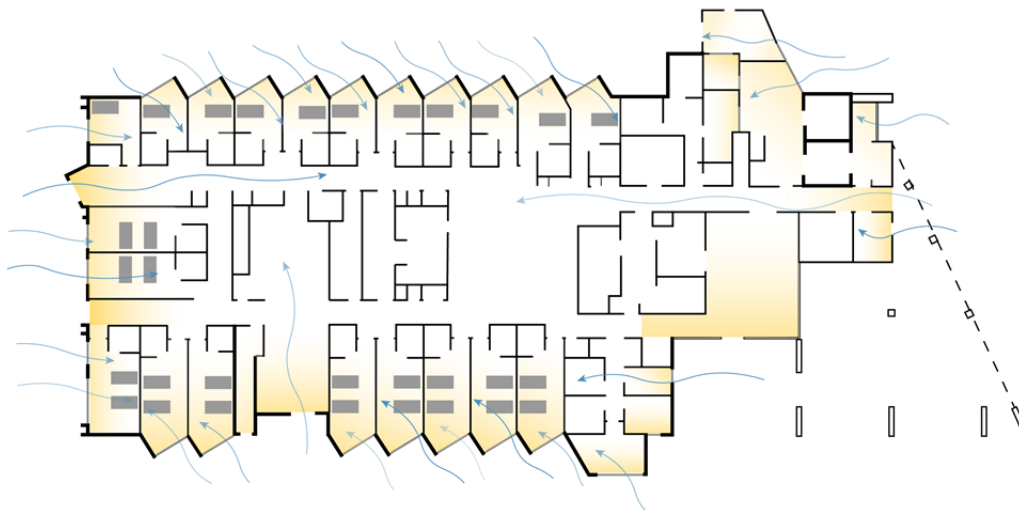


Figure 65: Floorplan Diagram by Author - Thuy Do

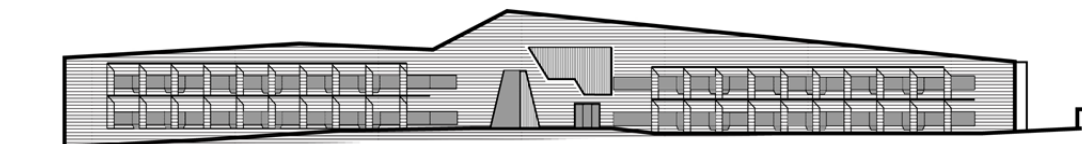


Figure 66: Section Diagram by Author - Thuy Do

Conceptual Design Process

To comprehend the physical function of how children move through space, one has to study their average height to weight ratio. A typical child occupied a space depending on his or her age and height to weight ratio. For example, a five year-old child on average weighed forty and a half pounds and is forty-three inches tall. A nine year-old child on average weighed sixty pounds and is fifty-two and a half inches tall. A nine year-old child on average weighed sixty pounds and is fifty-two and a half inches tall. A thirteen year-old child on average weighed one hundred pounds and is sixty-one and a half inches. Therefore, the type and size of spaces that each of these children required to occupy will be different in term of design.

AVERAGE HEIGHT TO WEIGHT



13 yrs	100.0 lb	61.5"
12 yrs	88.5 lb	58.7"
11 yrs	78.5 lb	56.5"
10 yrs	70.5 lb	54.5"
9 yrs	63.0 lb	52.5"
8 yrs	56.5 lb	50.4"
7 yrs	50.5 lb	48.5"
6 yrs	45.5 lb	45.5"
5 yrs	40.5 lb	43.0"

OCCUPIED SPACE

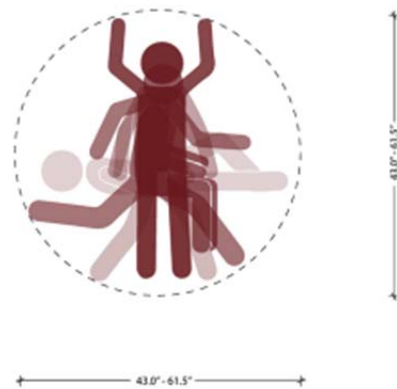
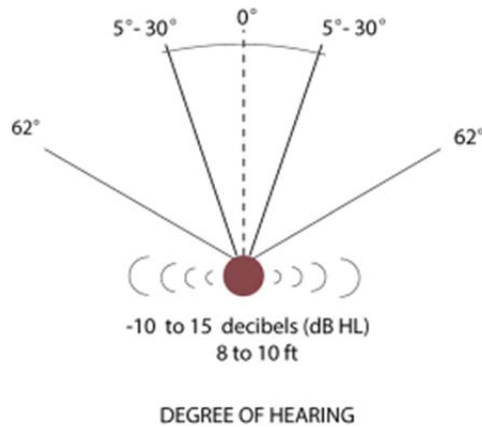


Figure 67: Diagram by Author - Thuy Do

In order to incorporate well design classrooms for the children field and angles of vision were studies and implemented. Their field of vision is zero to sixty-two degree from left and right. Their degree of hearing is minus ten to fifteen decibels in the range of eight to ten feet. The children angles of vision is from zero to plus fifty when looking up. The angles of vision is from zero to minus seventy when looking down. These results suggested for a more intimate classrooms for the children to learn in a more productive and affective environment.

FIELD OF VISION



ANGLES OF VISION

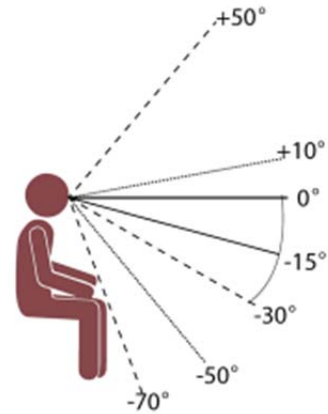


Figure 68: Diagram by Author - Thuy Do

Children interact differently than adults. Some are quieter and keep to themselves. Others are more social. Studying the proximity zones of children can help better understand their comfortable spaces. From zero to eighteen inches are reserved for intimate space. From eighteen inches to four feet is the children personal space. From four feet to twelve feet is their social space. Finally, from twelve feet and over is considered public space.

PROXIMITY ZONES

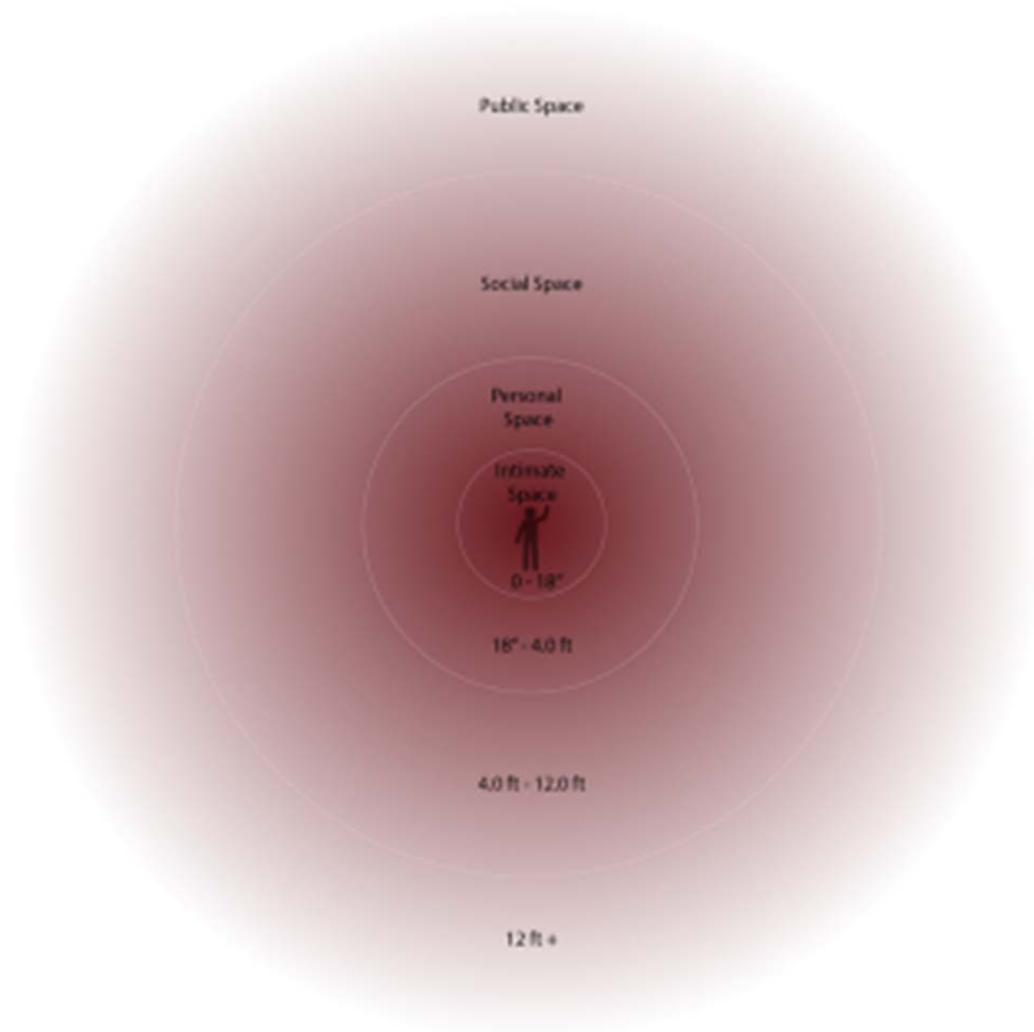


Figure 69: Diagram by Author - Thuy Do

Spatial Condition

Some spatial conditions were studied to better understand the design of the different of spaces for the children using this residential treatment center.

Different configurations of spaces were tested. In addition, alternated scenarios of spaces were also looked into. The following spatial condition diagrams will show these tested hypothesizes.

Spatial Condition 1: Bedroom



Figure 70: Diagram by Author - Thuy Do

Spatial Condition 2: Classroom



Figure 71: Diagram by Author - Thuy Do

Spatial Condition 3: Social Interaction

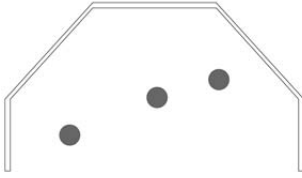


Figure 72: Diagram by Author - Thuy Do

Spatial Condition 4: Moving through space

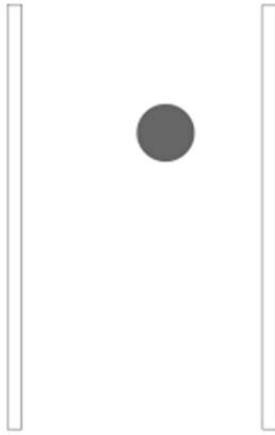


Figure 73: Diagram by Author - Thuy Do

Spatial Condition 5: Play and Intersection

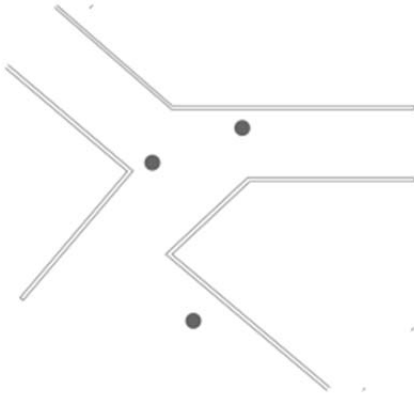
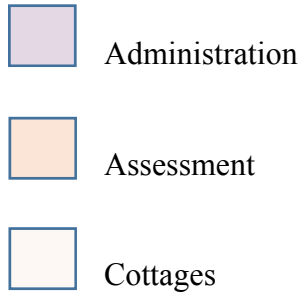


Figure 74: Diagram by Author - Thuy Do

Chapter 6: Design Proposal

When designing a children residential treatment center, one has to incorporate many architectural elements. Incorporating site into the design will make the design feel more natural, implying the structure was meant to be there. Another important aspect is incorporating the programs. The technical and layout of the program is essential to the users. In this case, with a children residential treatment center, there are two main users. The professional staff and the children. Designing feedback from the staff is easier to translate. However, children's needs and comfort might be harder to solve. It is more difficult when the target population of the children are not in a stable state. The treatment center is located in Cheverly, Prince George's County, Maryland. It treats children ages thirteen and younger. The children will be divided into three groups in term of ages. There are three cottages. Cottage A will house children from seven and younger. Cottage B will house children from eight to ten. Finally, Cottage C will house children from eleven to thirteen. There are sixty-six beds total, twenty-two beds per cottage. There are single beds, double beds, and quadruple beds. The design of the center will be embedded into Cheverly hillside. This is crucial because it will fit into the surrounding landscape of the forest. There will be three stories; administration, assessment, and cottages. This layout will provide plenty of natural light and air for the building through a well corridor. This main corridor is also a memorial path to remember all the children that had passed away by suicide. The cottages are on the last level separated from the rest of the building. interior courtyard for the children to play and exercise.

Parti



VIEW OF SITE

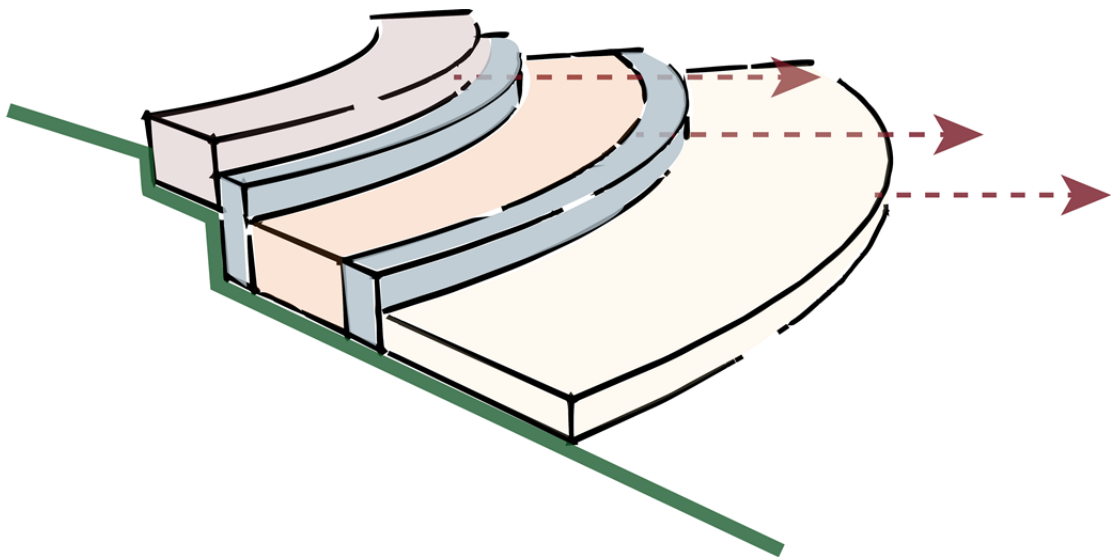


Figure 75: Diagram by Author - Thuy Do

CAPTURE LIGHT AND AIR

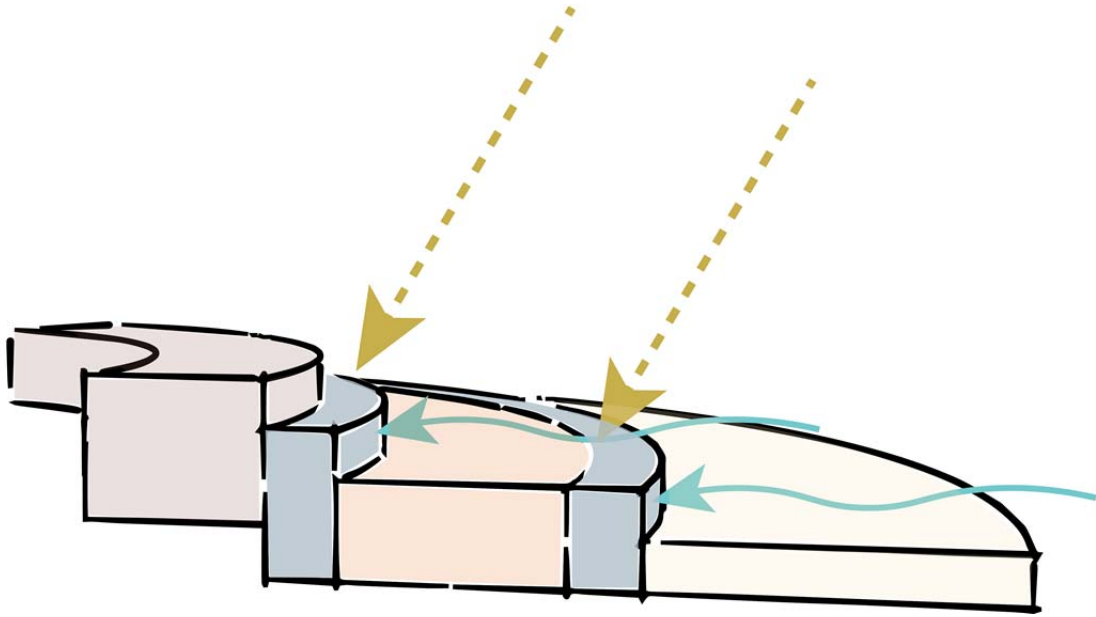


Figure 76: Diagram by Author - Thuy Do

SEPARATION OF SPACES

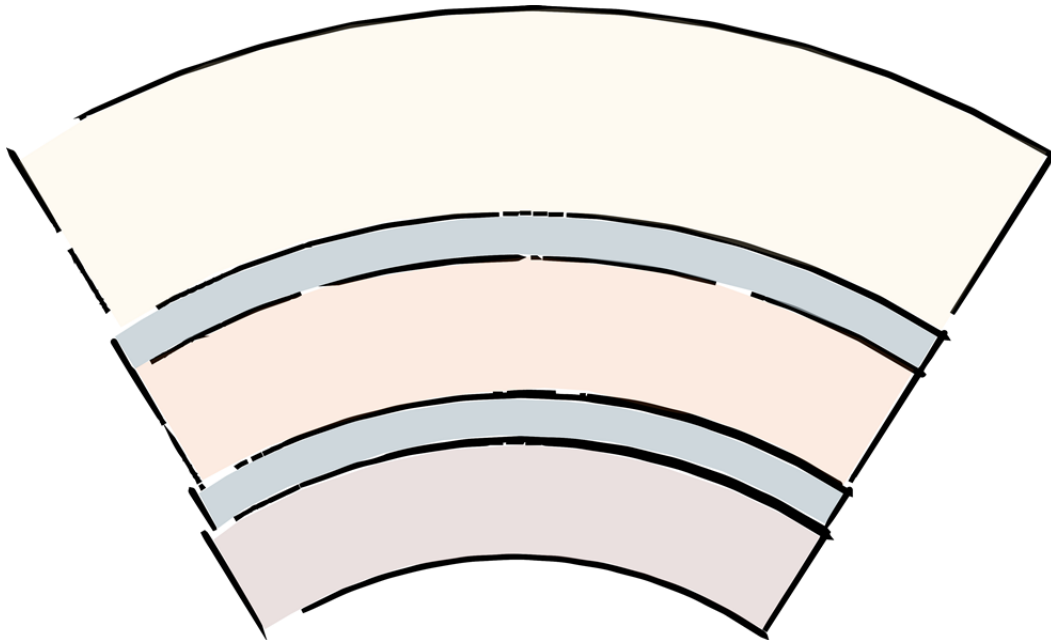


Figure 77: Diagram by Author - Thuy Do

ADMINISTRATION

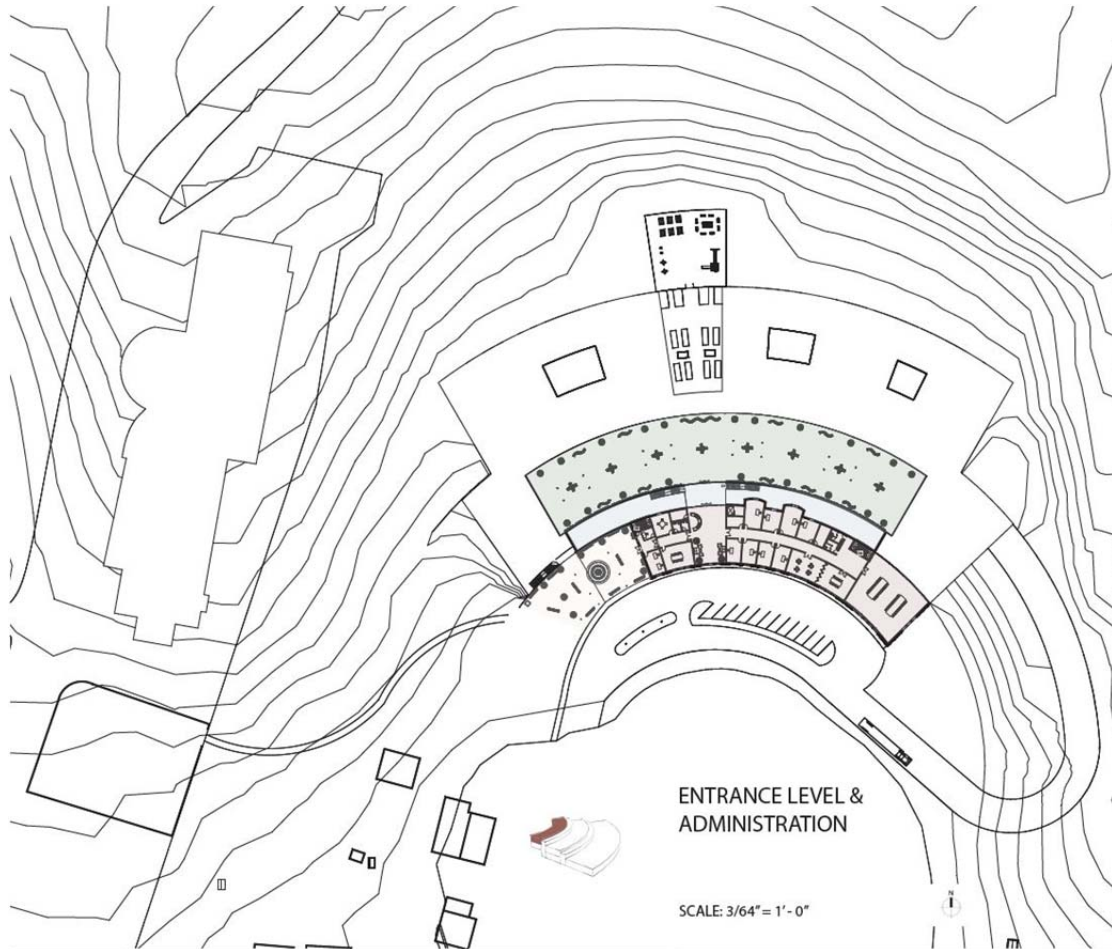


Figure 78: Diagram by Author - Thuy Do

Administration is at the top of the site where the front entrance will be. This is where the children and their family will check-in and check-out. There is a pedestrian bridge on the left side of the site connecting the residential treatment center to the garage located by the Prince George's Health Center. There is an outdoor space in front of the entrance to the left that welcomes people. It is also a drop-off and pick-up area where the handicapped could be easily accessed. The administration space has a security office, main lobby, offices, small meeting rooms, large conference room, and multi-use room.

ASSESSMENT

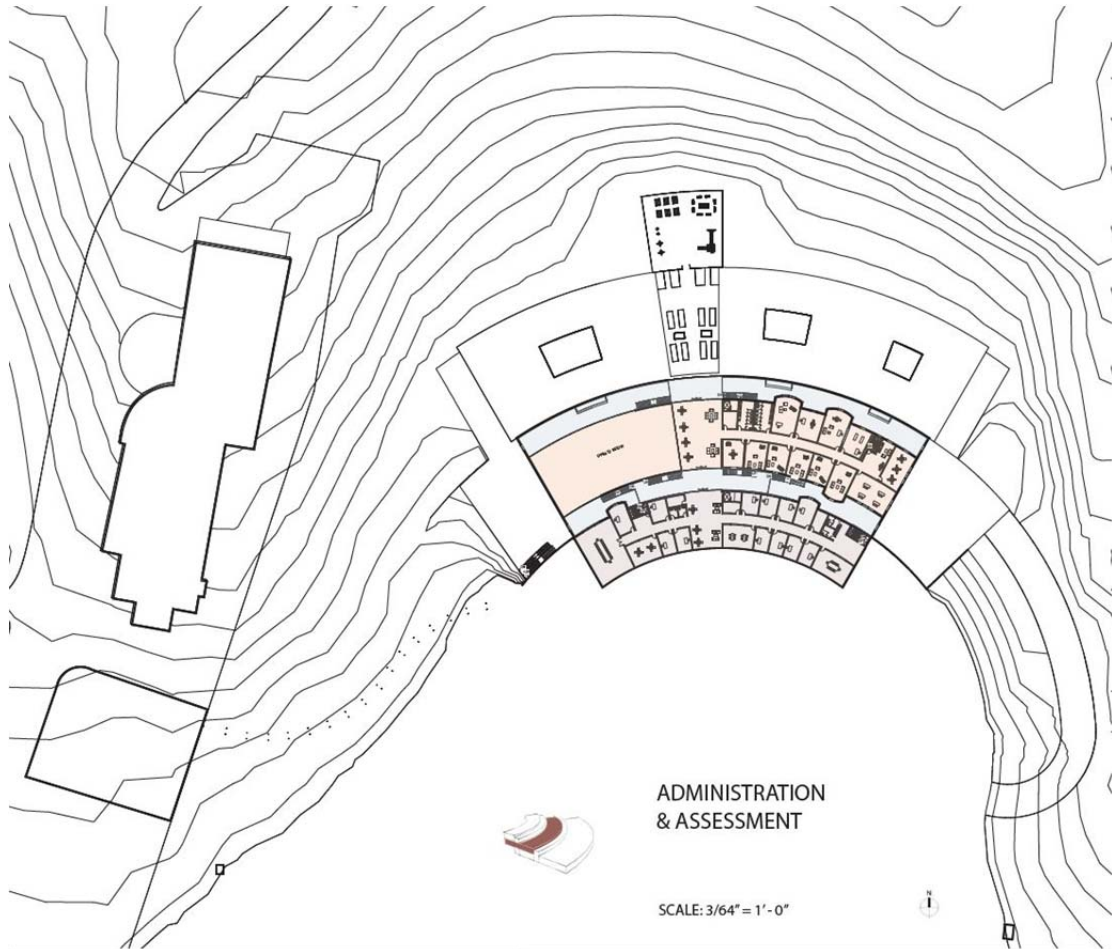


Figure 79: Diagram by Author - Thuy Do

Assessment space is in the middle of the structure located between administration and cottages. It has a medical and pharmacy pick up area. This space has offices for the doctors, therapists, nurses, and teachers. It has therapy rooms for one-on-one and group sessions. Assessment space is designed with classrooms in different scales to accommodate small and large groups. It has a full interior court, where children could play sport and host gatherings and events. Finally, the assessment space is also where the cafeteria is located.

COTTAGES

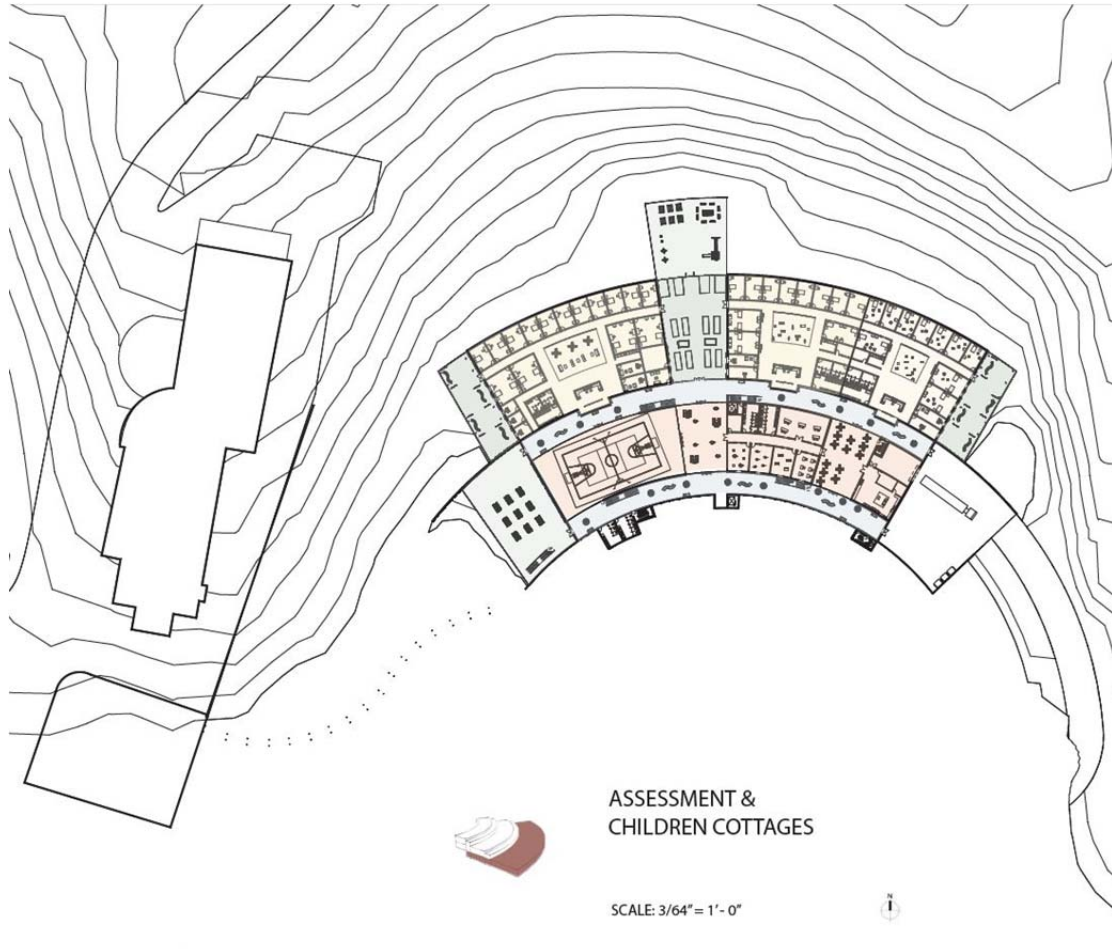


Figure 80: Diagram by Author - Thuy Do

Finally, the cottages are where the children stay when they are not in therapy or in class. This is where they play and interact with others. There are three cottages. The first cottage A located on the right side of the structure is for children seven years old and younger. Cottage B to the left side of it is for children from eight to ten years-old. There are a garden and playground between cottage B and C. Cottage C is for children from eleven to thirteen years old. On the sides of the cottages are courtyards where the children can come out to have fresh air and mediate among the surrounding trees.

Security Access

Administration Security Access

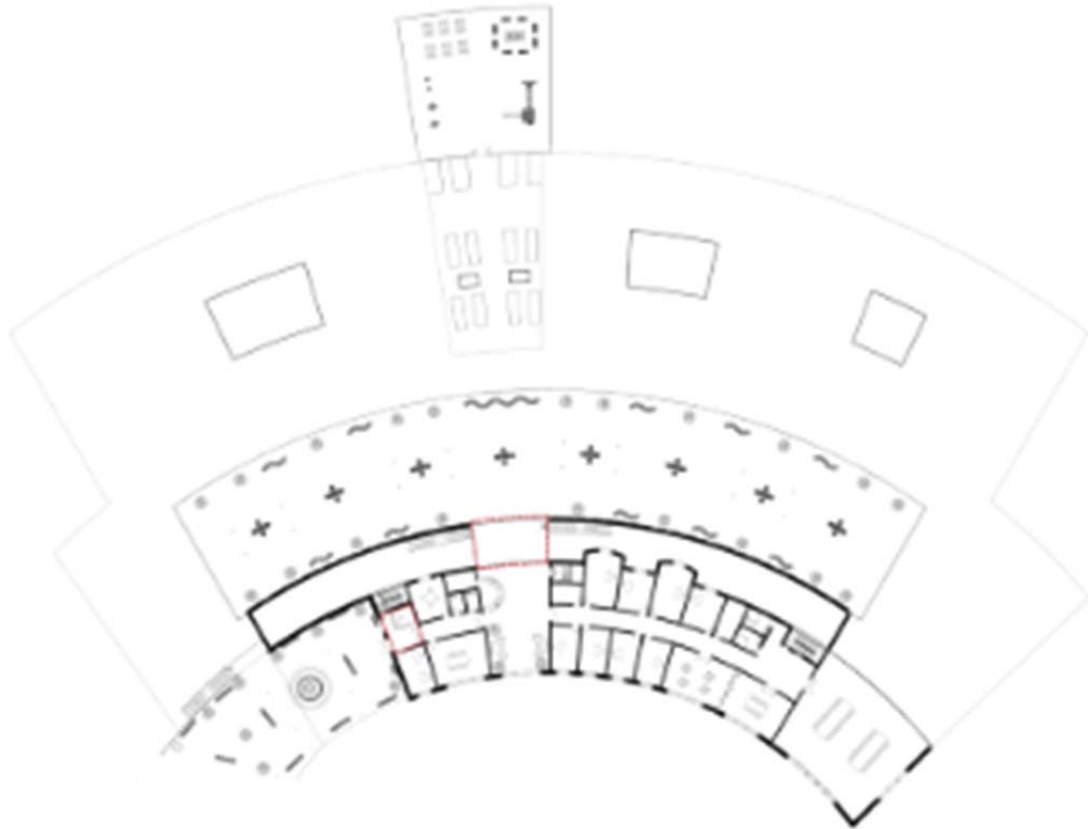




Figure 81: Diagram by Author - Thuy Do

 Need special card to pass through

Assessment Security Access



Figure 82: Diagram by Author - Thuy Do

 Need special card to pass through

Cottages Security Access

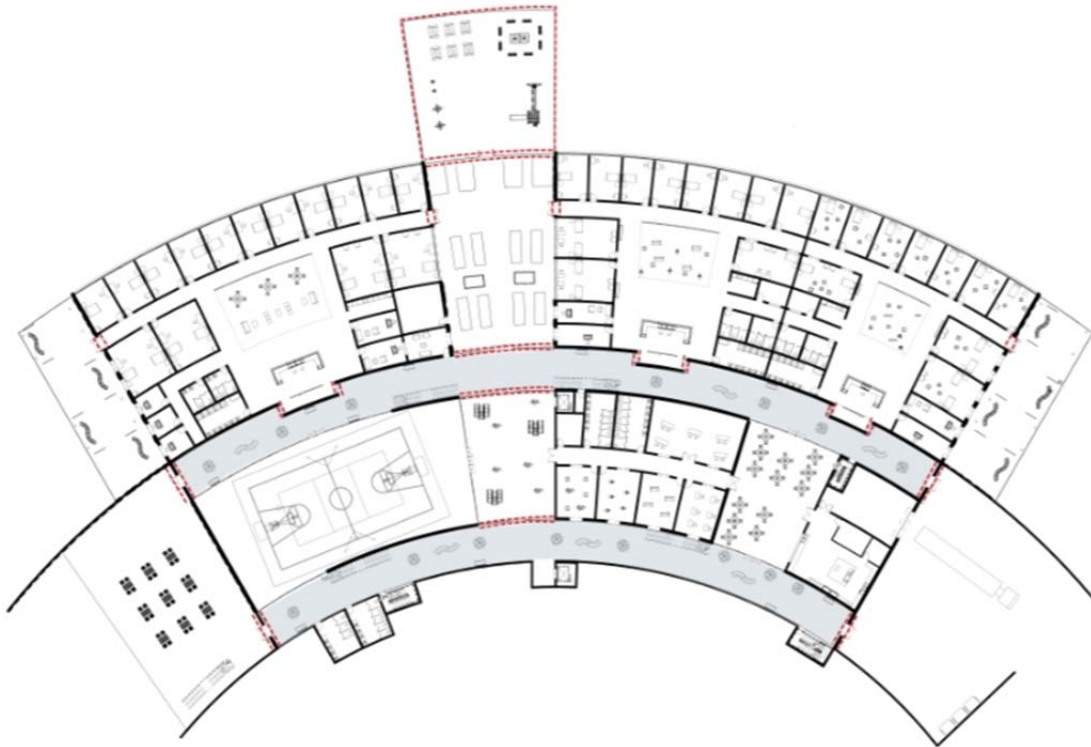



Figure 83: Diagram by Author - Thuy Do

 Need special card to pass through

Circulations

Administration fire stairs and circulations

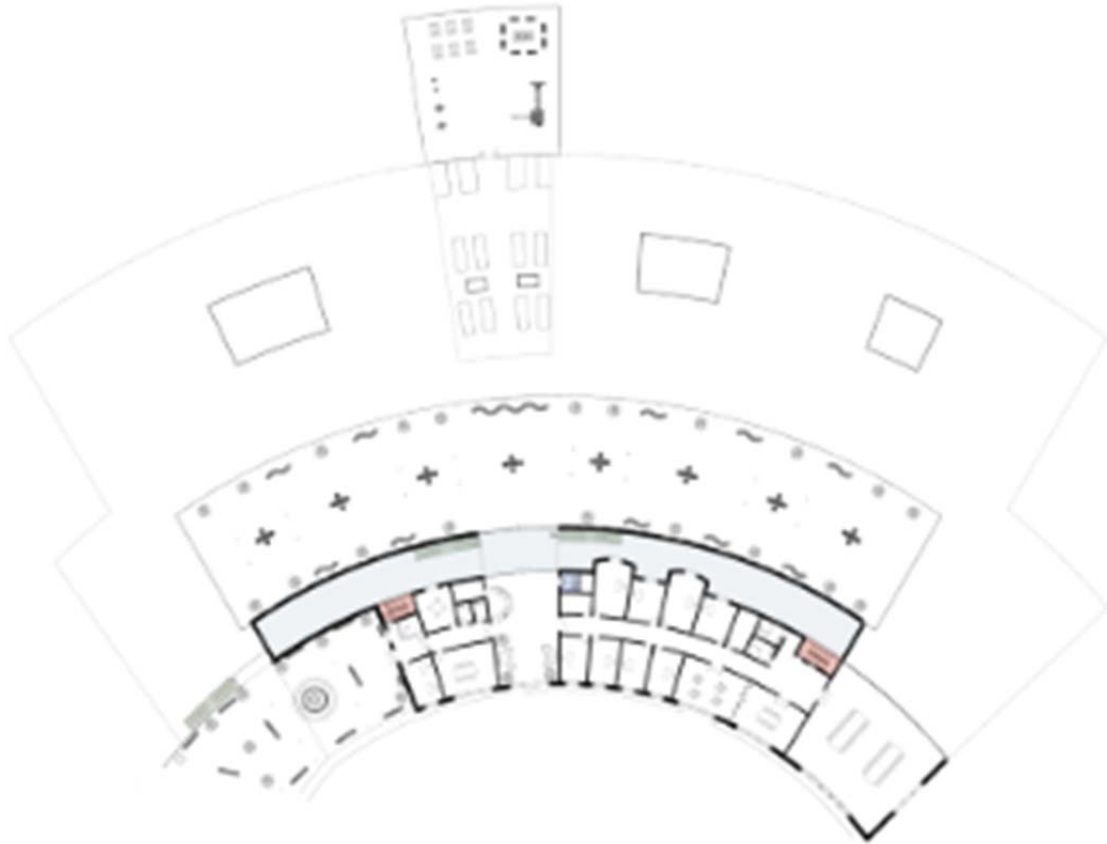
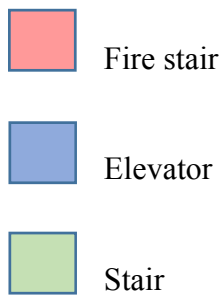





Figure 84: Diagram by Author - Thuy Do



Assessment fire stairs and circulations






Figure 85: Diagram by Author - Thuy Do

-  Fire stair
-  Elevator
-  Stair

Cottages fire stairs and circulations



Figure 86: Diagram by Author - Thuy Do

-  Fire stair
-  Elevator
-  Stair

Section

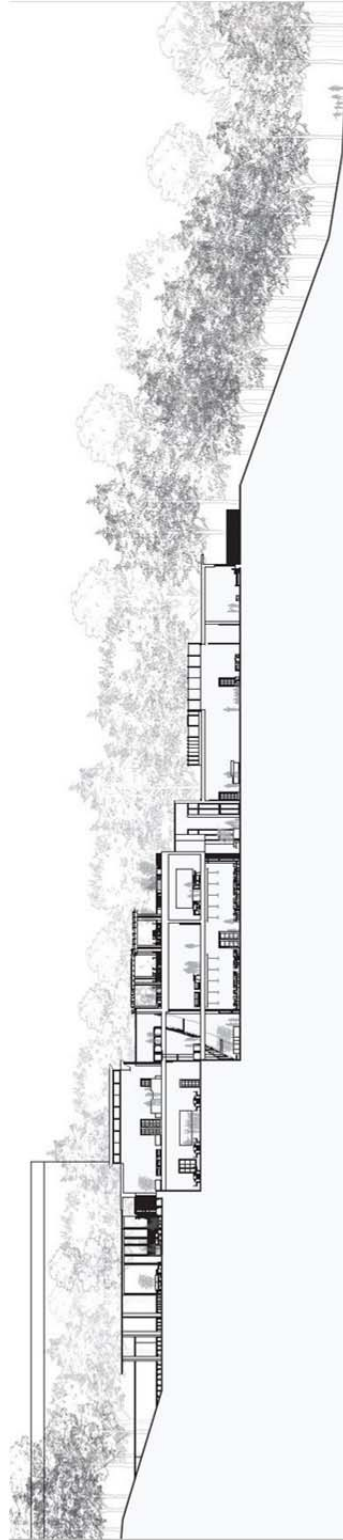


Figure 87: Diagram by Author - Thuy Do

Chapter 7: Conclusion

Cheverly Residential Treatment Center is a place where at risk children can gather and be treated in a safe environment. It is a place where children can play, learn, and grow together. They will help each other because they understand one another. Using architecture as a tool to translate nature and natural elements into spatial experiences of reflection, affect mental health through space, sway negative social stigmas, and provide defined enclosure without restrained containment.

Cheverly Residential Treatment Center is embedded in the community and the site it is built on. This treatment center will bring the topic of suicide to the forefront on a micro and macro level. The Cheverly Residential Treatment Center will be the tool to help at risk children in their road to recovery. The future of at risk children will be brighter and full of hope.

Cheverly Site Plan

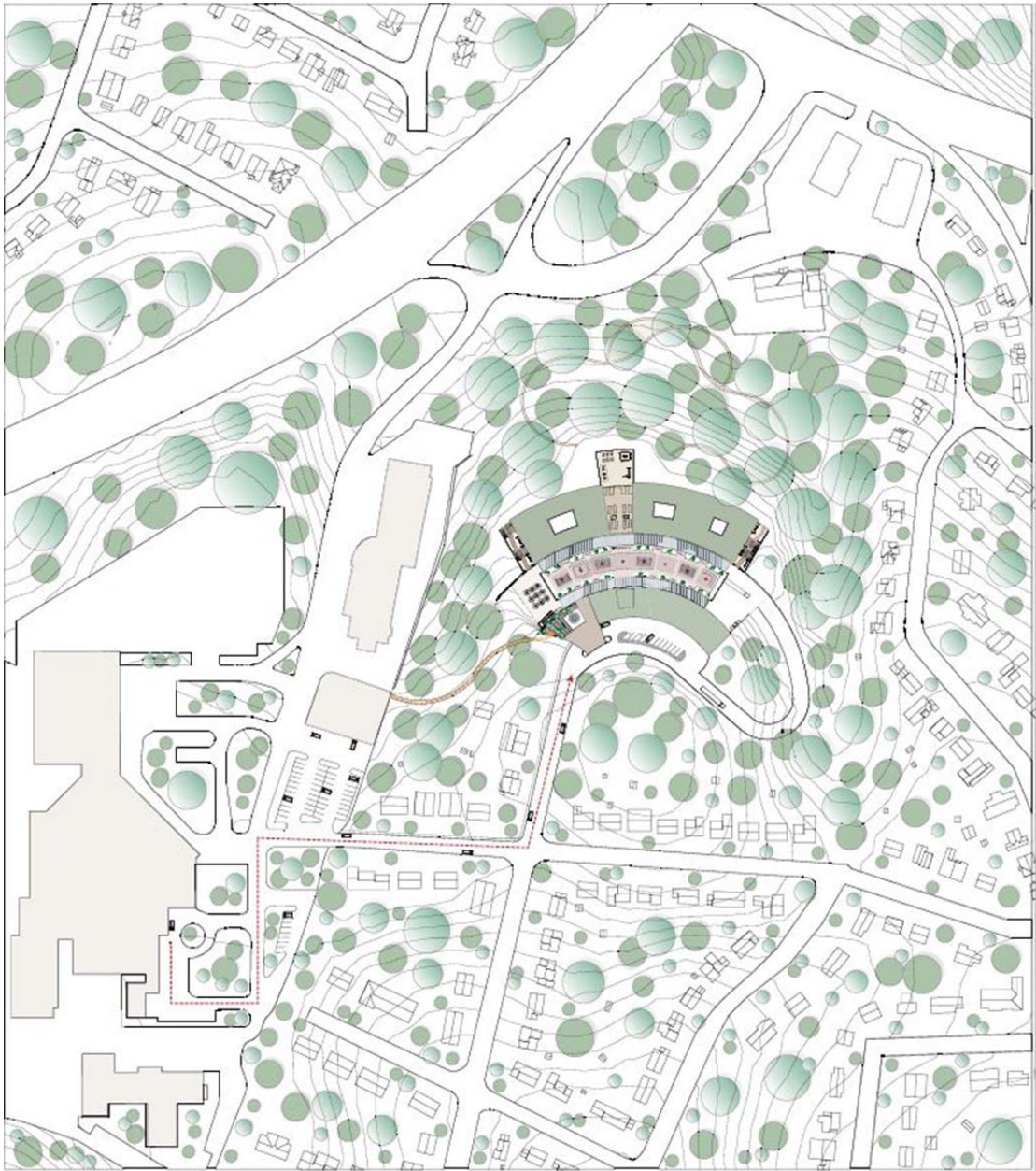


Figure 88: Diagram by Author - Thuy Do

West View Looking East

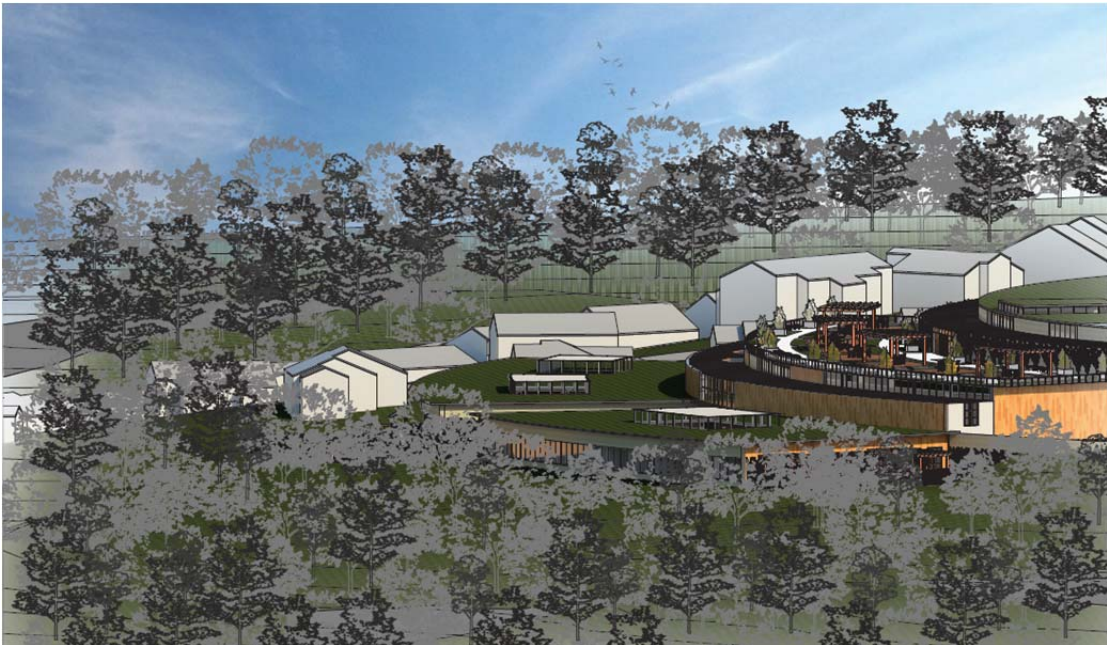


Figure 89: Diagram by Author - Thuy Do

Front Entrance

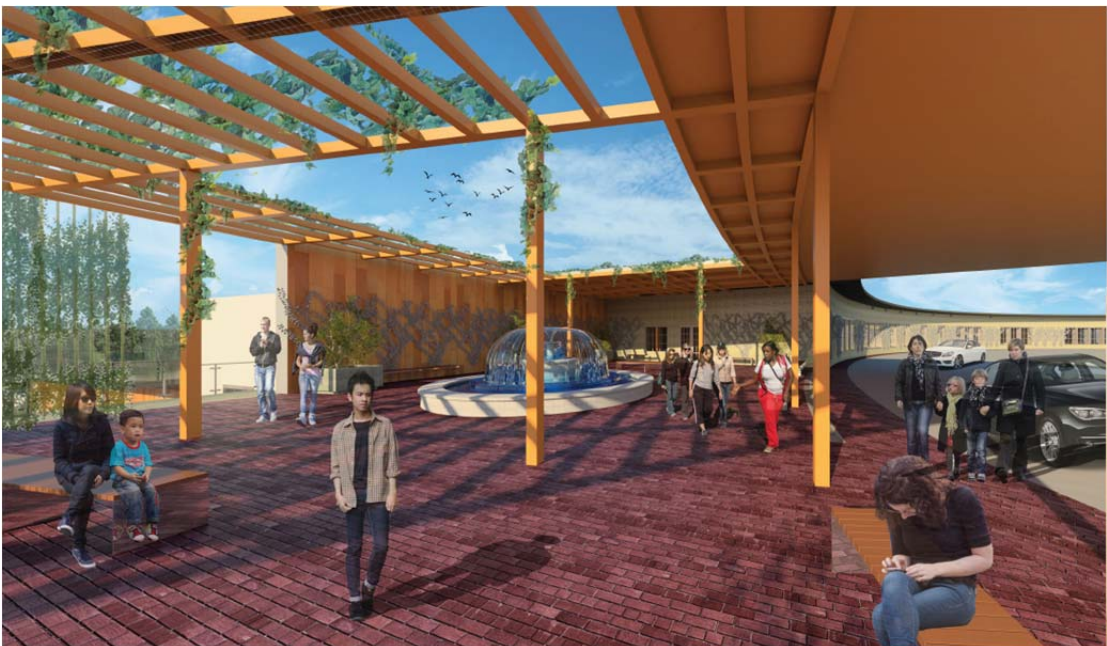


Figure 90: Diagram by Author - Thuy Do

Checking In Main Lobby



Figure 91: Diagram by Author - Thuy Do

Roof Terrace



Figure 92: Diagram by Author - Thuy Do

Memorial Hallway

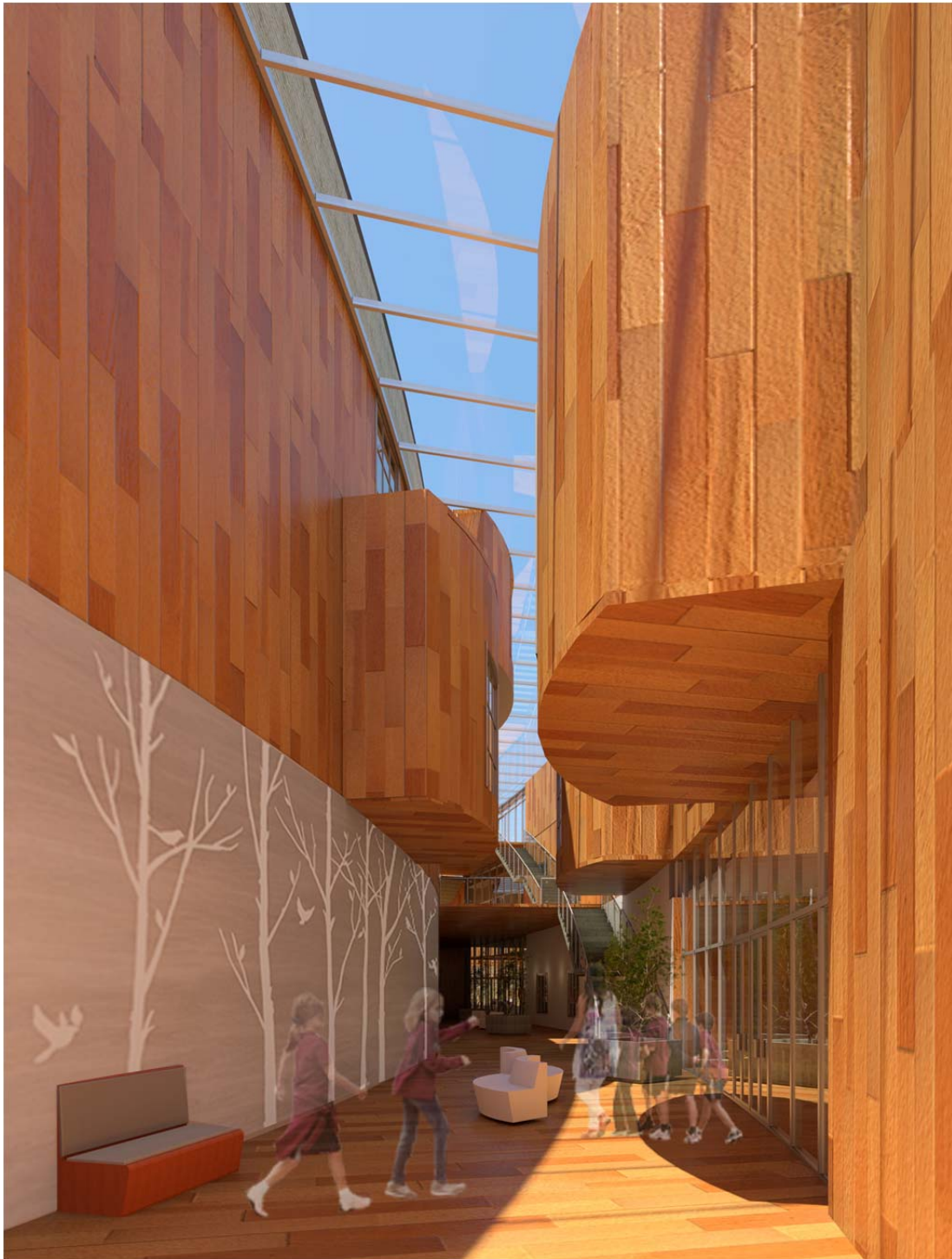


Figure 93: Diagram by Author - Thuy Do

Typical Day of a Child in Cheverly Residential Treatment Center

Eating in Cafeteria



Figure 94: Diagram by Author - Thuy Do

Studying in classroom



Figure 95: Diagram by Author - Thuy Do

Therapy Session



Figure 96: Diagram by Author - Thuy Do

Gardening



Figure 97: Diagram by Author - Thuy Do

Last Day Checking-Out

Saying Goodbye



Figure 98: Diagram by Author - Thuy Do



Figure 99: Diagram by Author - Thuy Do

Getting Medical Schedules



Figure 100: Diagram by Author - Thuy Do

Checking-out



Figure 101: Diagram by Author - Thuy Do

Cottages Interior

Cottage A: Seven Year-Old and Under



Figure 102: Diagram by Author - Thuy Do



Figure 103: Diagram by Author - Thuy Do

Cottage B: Eight to Ten Years Old



Figure 104: Diagram by Author - Thuy Do



Figure 105: Diagram by Author - Thuy Do

Cottages C: 11 – 13 years old



Figure 106: Diagram by Author - Thuy Do

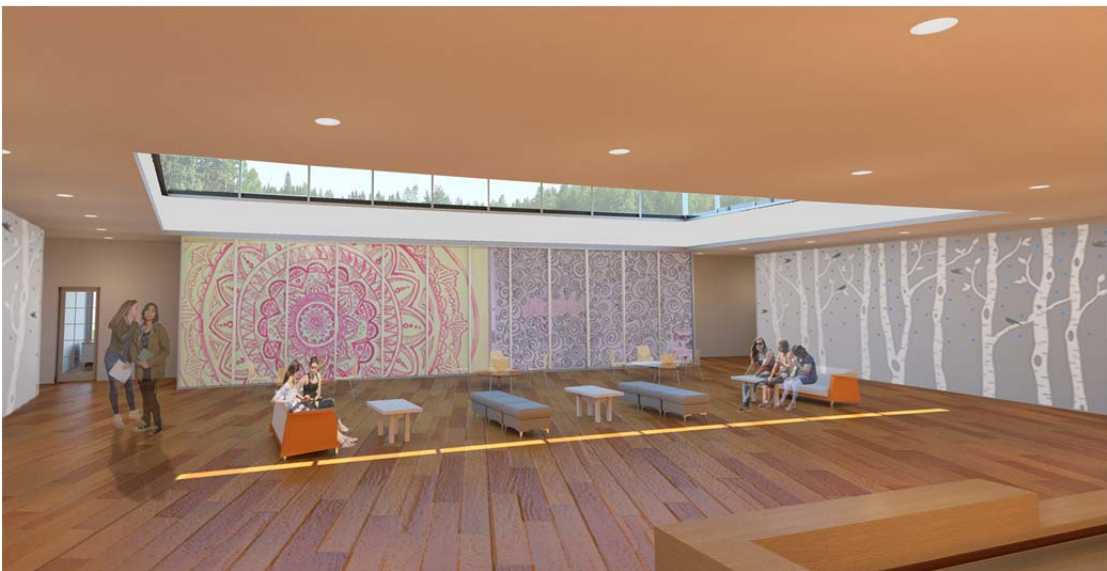


Figure 107: Diagram by Author - Thuy Do

Model of Site and Structure

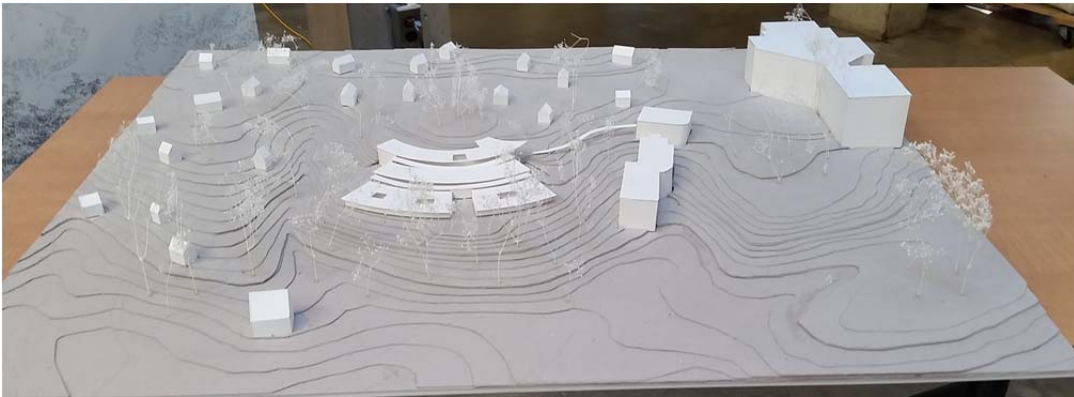


Figure 108: Diagram by Author - Thuy Do

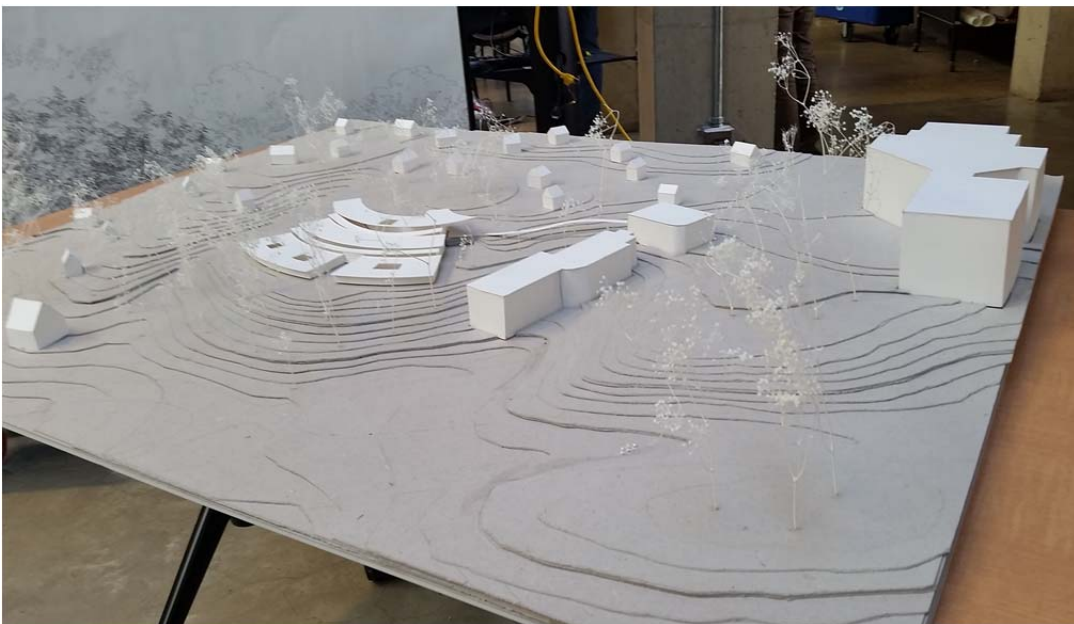


Figure 109: Diagram by Author - Thuy Do

Bibliography

Books

1. Appleton, Jay. *The Experience of Landscape*. Rev. ed. Chichester: Wiley, 1996. Print.
2. Anderson RL, et al. "Carpeting in Hospitals: An Epidemiological Evaluation." *Journal of Clinical Microbiology* 15.3 (1982): 408-15. Print.
3. Birksted, Jan. *Relating Architecture to Landscape*. London: E & FN Spon, 1999. Print.
4. "Author Index." *Proceedings of the IRE* 46.5 (1958). Print.
5. "Bedroom Size and Social Interaction of the Psychiatric Ward." *Environment and Behavior* 2.3 (1970): 255-270. Print.
6. Beauchemin KM, and Hays P. "Sunny Hospital Rooms Expedite Recovery from Severe and Refractory Depressions." *Journal of Affective Disorders* 40.1-2 (1996): 49-51. Print.
7. Biley, Francis C. "The Effects on Patient Well-Being of Music Listening As a Nursing Intervention: A Review of the Literature." *Journal of Clinical Nursing* 9.5 (2000): 668-677. Print.
8. Boerger J., and Shepley M. "Mental Health Design: A Case Study ... Camarillo State Hospital and Developmental Center." *Journal of Health Care Interior Design : Proceedings from the ... Symposium on Health Care Interior Design*. Symposium on Health Care Interior Design 3 (1991): 149-57. Print.
9. Carmona, Matthew. *Public Places, Urban Spaces : The Dimensions of Urban Design*. Oxford: Architectural Press, 2003. Print.
10. Coventry, Kenny R., and S. C. Garrod. *Saying, Seeing, and Acting : The Psychological Semantics of Spatial Prepositions*. Hove, East Sussex: Psychology Press, 2004. Print
11. Cox, Anthony, and Philip. *Groves. Hospitals and Health-Care Facilities : A Design and Development Guide*. London: Butterworth Architecture, 1990. Print.
12. Devlin, Ann. "Psychiatric Ward Renovation." *Environment and Behavior* 24.1 (1992): 66-84. Print.
13. Design Fete, and National Institute of Mental Health (U.S.). *Architecture for the Community Mental Health Center*. Houston, Tex.: Dept. of Architecture, Rice University, 1967. Print. The community health center, 2; Community health center, 2.
14. Hiatt LG. "The Color and Use of Color in Environments for Older People." *Nursing Homes* 30.3 (1981): 18-22. Print.
15. *Illuminating Engineering Society of North America. Lighting for Health Care Facilities*. New York, NY: Illuminating Engineering Society of North America, 1985. Print.

16. Pallasmaa, Juhani. *The Eyes of the Skin : Architecture and the Senses*. Chichester: Wiley-Academy, 2005. Print.
17. Leibrock, Cynthia. *Design Details for Health : Making the Most of Interior Design's Healing Potential*. New York: Wiley, 2000. Print.
18. Kaplan, Rachel., and Stephen. Kaplan. *The Experience of Nature : A Psychological Perspective*. Michigan: Cambridge University Press, 1995. Print.
19. Swaffield, Simon R. *Theory in Landscape Architecture : A Reader*. Philadelphia: University of Pennsylvania Press, 2002. Print.
20. Trancik, Roger. *Finding Lost Space : Theories of Urban Design*. New York: Van Nostrand Reinhold, 1986. Print.
21. Tsoi/Kobus & Associates. *Tsoi/Kobus & Associates : Architecture, Planning, Interior Design*. Mulgrave, Vic.: Images Pub., 2008. Print. The master architect series; Master architect series.
22. Zeisel, John. *Inquiry by Design : Environment/behavior/neuroscience in Architecture, Interiors, Landscape, and Planning*. Rev. ed. New York: W.W. Norton & Company, 2006. Print.
23. Schirmer, Christoph., and Philipp Meuser. *Hospital Architecture : Specialist Clinics and Medical Departments*. Singapore: Page One Pub., 2006. Print.
24. Symposium on Healthcare Design, and Sara O. Marberry. *Innovations in Healthcare Design : Selected Presentations from the First Five Symposia on Healthcare Design*. New York: Van Nostrand Reinhold, 1995. Print.
25. Moore, Gary T., Carol G. Lane, and Lisa A. Lindberg. *Bibliography on Children and the Physical Environment : Child Care Centers, Outdoor Play Environments, and Other Children's Environments*. Milwaukee Wis.: Community Design Center, 1979. Print. Publications in architecture and urban planning, rept. R79-3.
26. Rashid, Karim, and Anneke Bokern. *Relax : Interiors for Human Wellness*. Amsterdam: Frame Publishers, 2007. Print.
27. Dijkstra, K., Pieterse, M. E., & Pruyn, A. (2008). Stress-reducing effects of indoor plants in the built healthcare environment: The mediating role of perceived attractiveness. *Preventive Medicine*, 47(3), 279–283. <http://doi.org/10.1016/j.ypmed.2008.01.013>
28. Gutkowski, S., Ginath, Y., & Guttman, F. (1992). Improving psychiatric environments through minimal architectural change. *Hospital & Community Psychiatry*, 43(9), 920–923.
29. Motzek, T., Bueter, K., & Marquardt, G. (2015). Environmental Cues in Double-Occupancy Rooms to Support Patients With Dementia. *HERD*. <http://doi.org/10.1177/1937586715619740>
30. Parkin SF. "The Effect of Ambient Music Upon the Reactions of Children Undergoing Dental Treatment." *ASDC Journal of Dentistry for Children* 48.6 (1981): 430-2. Print.

31. Miller RL, and Swensson ES. "New Age Public Won't Settle for Old-Fashioned Facilities." *Health Facilities Management* 8.3 (1995): 32, 34, 36-8. Print.

Journals

1. Dijkstra, K., Pieterse, M. E., & Pruyn, A. (2008). Stress-reducing effects of indoor plants in the built healthcare environment: The mediating role of perceived attractiveness. *Preventive Medicine*, 47(3), 279–283.
<http://doi.org/10.1016/j.ypmed.2008.01.013>
2. Gutkowski, S., Ginath, Y., & Guttman, F. (1992). Improving psychiatric environments through minimal architectural change. *Hospital & Community Psychiatry*, 43(9), 920–923.
3. Motzek, T., Bueter, K., & Marquardt, G. (2015). Environmental Cues in Double-Occupancy Rooms to Support Patients With Dementia. *HERD*.
<http://doi.org/10.1177/1937586715619740>

Article in an online journal

1. Brys, Shannon. "Inpatient Facilities Reflect Specialized Needs." *Behavioral Healthcare* 33.2 (2013): 38-40. ProQuest. Web. 8 Mar. 2016.
2. Price, Michael. "Suicide among Pre-adolescents." *American Psychological Association*. October 2010, Vol 41, No. 9. Web. 27 Feb. 2016.
<http://www.apa.org/monitor/2010/10/suicide.aspx>
3. "Suicide." - Children, Causes, Effects, Therapy, Adults, Examples, Person, People. Web. 27 Feb. 2016. <http://www.minddisorders.com/Py-Z/Suicide.html>
4. Holahan CJ, and Saegert S. "Behavioral and Attitudinal Effects of Large-Scale Variation in the Physical Environment of Psychiatric Wards." *Journal of Abnormal Psychology* 82.3 (1973): 454-62. Print. Physical environment in psychiatric ward.
5. "Mental illness at L.A. County's Twin Towers jail facility." *Los Angeles Times*. Los Angeles Times, n.d. Web. 26 Mar. 2017.
6. *Children's Mental Health Report*. Rep. N.p.: n.p., n.d. Children Mind Institute. Web.
7. *Local Leaders; Healthier Communities Through Design*. Rep. N.p.: n.p., n.d. AIA architects. Web.
8. Jackie Goldstein. "Community-Based Care Can Reduce The Stigma Of Mental Illness." *Health News From NPR* (July 2, 2016): n. pag. Web. 26 Mar. 2017.
<http://www.npr.org/sections/health-shots/2016/07/02/484055668/community-based-care-can-reduce-the-stigma-of-mental-illness>

9. Brocker, Jim. "Cheverly Is a Neighborly Niche in Prince George's County." *The Washington Post*. N.p., 22 Nov. 2013. Web. 1 Apr. 2017.

Thesis Dissertation

1. Elizabeth Nolen, "Architecture Without Vision", (Master Thesis, University of Maryland, 2015)
2. Katrina McRainey, "violence and obscurity: asylums and the transformative journey from feminine misfortune to healing", (Dual Masters in Architecture and Historic Preservation. 2013)

Websites

1. Marlena Fitzpatrick García / AlterNet. "Major Study: Suicide Rates in the U.S. Are Soaring." *Alternet*. N.p., 22 Apr. 2016. Web. 22 Mar. 2017.
2. "About Teen Suicide." KidsHealth - the Web's Most Visited Site about Children's Health. The Nemours Foundation. Web. 27 Feb. 2016. Reviewed by D'Arcy Lyness, PhD. Date reviewed: August 2015 <http://kidshealth.org/en/parents/suicide.html#>
3. *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 19 July 2016. Web. 22 Mar. 2017.
4. "Testimony – Marie Rivollet." *Humanium Together for Children's Rights*. N.p., n.d. Web. 25 Mar. 2017.
5. "Suicide Statistics — AFSP." *AFSP*. N.p., n.d. Web. 25 Mar. 2017.
6. Child Mind Institute
http://speakupforkids.org/ChildrensMentalHealthReport_052015.pdf
7. *** History & Policy of Mental Health in United States
<http://www.uniteforsight.org/mental-health/module2>
8. Mental Health America
<http://www.mentalhealthamerica.net/our-history>
9. "Community Mental Health Act." *National Council*. N.p., n.d. Web. 22 Mar. 2017.
10. "Suicide and Teens in Children." Suicide and Teens | Boston Children's Hospital. Web. 27 Feb. 2016. statistics of suicidal children and adolescents since 2011 to present.
11. Rivollet, Marie. "Child Suicide." Translated by Irene Roy. Reviewed by Cathy Chilliard and May Buchmuller. Humanium Together for Children's Rights. Web. 27 Feb. 2016. Last updated March 12, 2012.
12. "The Beryl Institute - Improving the Patient Experience." The Beryl Institute - Improving the Patient Experience. Web. 22 Feb. 2016. Case Studies of Healthcare

13. "Teen Suicide." Teen Suicide. Web. 27 Feb. 2016.
https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Teen-Suicide-010.aspx
14. https://www.aacap.org/aacap/families_and_youth/Glossary_of_Symptoms_and_Illnesses/Suicide.aspx
15. "Youth Suicide Statistics - Parent Resource Program." Parent Resource Program. Web. 01 Mar. 2016.
<http://jasonfoundation.com/prp/facts/youth-suicide-statistics/>
16. "Enclosure and Containment Definitions - Google Search." Enclosure and Containment Definition - Google Search. N.p., n.d. Web. 26 Mar. 2017.
17. "Document.write(document.title);" Residential Treatment Centers. N.p., n.d. Web. 26 Mar. 2017.
<http://www.mdcoalition.org/resources/pages/residential-treatment-centers>

Blogs/Forum

1. "Suicide." - Children, Causes, Effects, Therapy, Adults, Examples, Person, People. Web. 27 Feb. 2016.
<http://www.minddisorders.com/Py-Z/Suicide.html>
2. http://digimags.vendomegrp.com/index2.php?option=com_flippingbook&view=book&id=220

Documentary

Children of Darkness is a 1983 American documentary film on PBS produced by Ara Chekmayan and Richard Kotuk